"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

87261

S/033/60/037/006/020/022
E032/E514

An Interference Polarization Filter for Astrophysical Studies of the Sun in the K-Line of Ionized Calcium

photographs were obtained in the KCa^{+} line using the horizontal solar telescope (diameter of image of the Sun 16 cm). Typical photographs obtained are given. Acknowledgments are expressed to Academician V. P. Linnik for interest in this work. There are 7 figures and 10 references: 8 Soviet, 2 non-Soviet.

ASSOCIATION: Gosudarstvennyy opticheskiy institut imeni S. I. Vavilova (State Optical Institute imeni S. I. Vavilov)

SUBMITTED: May 4, 1960

Card 3/4

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

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87261
S/033/60/037/006/020/022
E032/E514

An Interference Polarization Filter for Astrophysical Studies of the Sun in the K-Line of Ionized Calcium

Fig.1

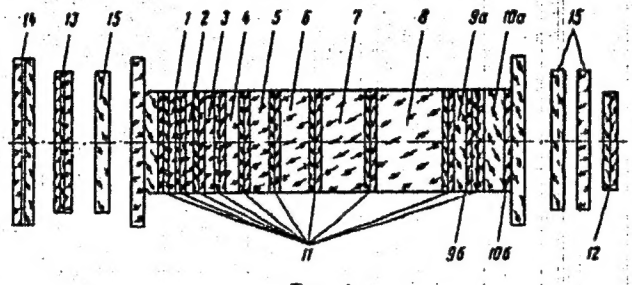

Рис. 1

Card 4/4

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, S.B.; SMIRNOVA, T.A.

Achromatic wave plates. Opt. i spektr. 16 no.5 894-897 My '64.
(MIRA 17:9)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

L 25528-66 EWP(e)/EWT(m)/EWP(b) WH

ACC NR: AP5025861 SOURCE CODE: UR/0020/65/164/004/0793/0795

27
26
23

AUTHOR: Ioffe, S. B.; Drichko, N. M.

ORG: none

TITLE: Phase dispersive interference-polarization filters

SOURCE: AN SSSR. Doklady, v. 164, no. 4, 1965, 793-795

TOPIC TAGS: optic filter, polarizing filter

ABSTRACT: The properties of interference-polarization filters depend basically on the magnitude of the double refraction index and the thickness of the layers, the dispersion of the double refraction index being of secondary importance. In the present article the authors describe a new phase dispersive interference-polarization filter in which the fundamental effect is due to dispersion properties of the materials. Use of different crystalline materials exhibiting varying degrees of dispersion permits the production of passband spectral domains, shown in Figures 1 and 2, with completely novel characteristics.

Card 1/4 UDC: 681.40

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

L 15528-66

ACC NR: AP5025861

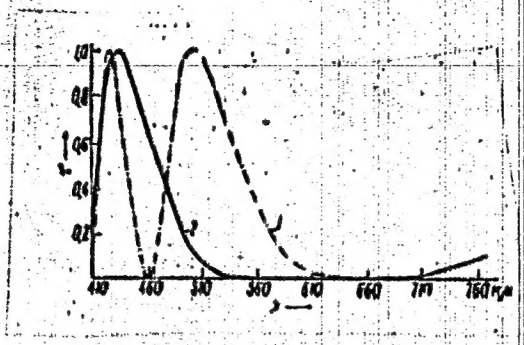

Fig. 1 Passband curves of a two-component phase dispersive interference-polarization filter 1 - λ_0 = 656.3 mμ, N_{01} = (magnitude of the wave length difference appearing within the 1st plate for a wavelength λ_0) = 79.11, N_{02} = 77.61, $n_1 = n_2 = 0$, $v_1 = 45°$, $v_2 = -45°$ (n_1 and n_2 - orientation angles of the polarizer and analyzer; v_1 and v_2 - orientation angles of the plates); 2 - λ_0 = 656.3 mμ, N_{01} = 53.24, N_{02} = 51.74 for the same orientations. Index 1 refers to quartz plates, 2 to spar plates.

Card 2/4

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ACC NR: AP5025861

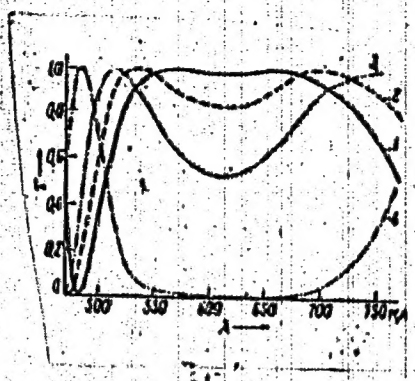

Fig. 2 Passband curves of a two-component phase dispersive interference-polarization filter with an electrooptical phase changing device. $1 - \varphi_{m+1} = 0$; $2 - 0.2\pi$; $3 - 0.4\pi$; $4 - \varphi_{m+1} = \pi$ (φ_{m+1} - phase difference appearing in the K_{m+1} plate.) $\lambda_0 = 656.3$ mμ, $N_{01} = 134.35$, $N_{02} = 129.35$, $n_1 = n_2 = 0$, $v_1 = +45°$, $v_2 = -45°$).

Card 3/4

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

L 15528-66

ACC NR: AP5025861

The paper was presented by Academician V. P. Linnik, 6 Feb. 65. Orig. art. has: 6 formulas and 4 figures.

SUB CODE: 20 / SUBM DATE: 11Feb65 / ORIG REF: 001 / OTH REF: 002

Card 4/4

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, Sh.I.

The AChV-Sh carding and knitting unit. Biul. tekh.-ekon. inform. no.10:55-57 '59. (MIRA 13:3)
(Knitting machines)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

S/079/62/032/002/001/011
D204/D303

AUTHORS: Chernyshev, Ye.,A, Tolstikova, N.G., Ioffe, S.L. and Petrov, A.D.

TITLE: Interaction of disilanes with chlorobenzene in the vapor phase

PERIODICAL: Zhurnal obshchey khimii, v. 32, no. 2, 1962, 369-374

TEXT: A continuation of earlier work concerned with the preparation of organochlorosilanes. In the present paper the authors describe the reactions of chlorobenzene with hexamethyl -, pentamethyl chloro-, tetramethyl dichloro- and hexachlorodisilanes. The reactions were studied by passing mixtures of PhCl (2 moles) and the corresponding disilane (1 mole) through a silica tube at 500-600° C. The reagents were in the hot zone for 30-35 secs. The products were then condensed and analyzed. Full experimental details are given. The interaction of PhCl with hexamethyl disilane at 500 and 550° C yielded $(CH_3)_3SiCl$, C_6H_6, $(CH_3)_3Si.Ch_2.Si(CH_3)_2Cl$

Card 1/3

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Interaction of disilanes ...

and $C_6H_5.C_6H_5$. Small quantities of $Cl(CH_3)_2Si.Ch_2.Si(CH_3)_3Cl$ and $(CH_3)_3SiC_6H_5$ were also formed at 600°C. The reaction with pentamethyl chloro-disilane gave $(CH_3)_3SiCl$, $(CH_3)_2SiCl_2$, C_6H_6, $Cl(CH_3)_2Si.CH_2.Si(CH_3)_2Cl$, $Cl(CH_3)_2Si.CH_2Si(CH_3)Cl_2$, $(CH_3)_3SiC_6H_5$, $Cl(CH_3)_2SiC_6H_5$ and $C_6H_5.C_6H_5$. No thermal rearrangement of pentamethyl chloro-disilane was observed, in contrast to the hexamethyl disilane. The action of PhCl on tetra methyl dichlorodisilane (at 600°C only) resulted in $(CH_3)_2SiCl_2$, C_6H_6, $Cl(CH_3)_2Si.CH_2.Si(CH_3)Cl_2$, $Cl(CH_3)_2SiC_6H_5$ and $C_6H_5.C_6H_5$. In addition to the above listed compounds, high-boiling residues were formed in the 3 cases. The nature of the products obtained is discussed and it is concluded that these reactions proceed by a free radical chain mechanism. The interactions begin with a displacement of an H-atom in the disilane by a silyl or a phenyl radical, followed by rearrangement of $\equiv Si-\dot{Si}-CH_2$ into $\equiv Si-CH_2-\dot{Si}\equiv$. The interaction, at 580°C, of PhCl with

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, S. L.; TARTAKOVSKIY, V. A.; NOVIKOV, S. S.

Mechanism of the reduction of carbonyl-containing compounds with diborane solution in tetrahydrofuran. Izv AN SSSR Ser Khim no. 4: 622-631 Ap '64. (MIRA 17:5)

1. Institut organicheskoy khimii im. N. D. Zelinskogo AN SSSR.

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, S.L.; TARTAKOVSKIY, V.A.; MEDVEDEVA, A.A.; NOVIKOV, S.S.

Reduction of oximes with diborane solution in tetrahydrofuran. Izv. AN SSSR. Ser. khim. no.8:1537-1538 Ag '64. (MIRA 17:9)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, S.L.; TARTAKOVSKIY, V.A.; NOVIKOV, S.S.

Selective reduction of aliphatic functional nitro compounds. Usp. khim. 35 no.1:43-69 Ja '66. (MIRA 19:1)

1. Institut organicheskoy khimii AN SSSR imeni N.D. Zelinskogo.

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

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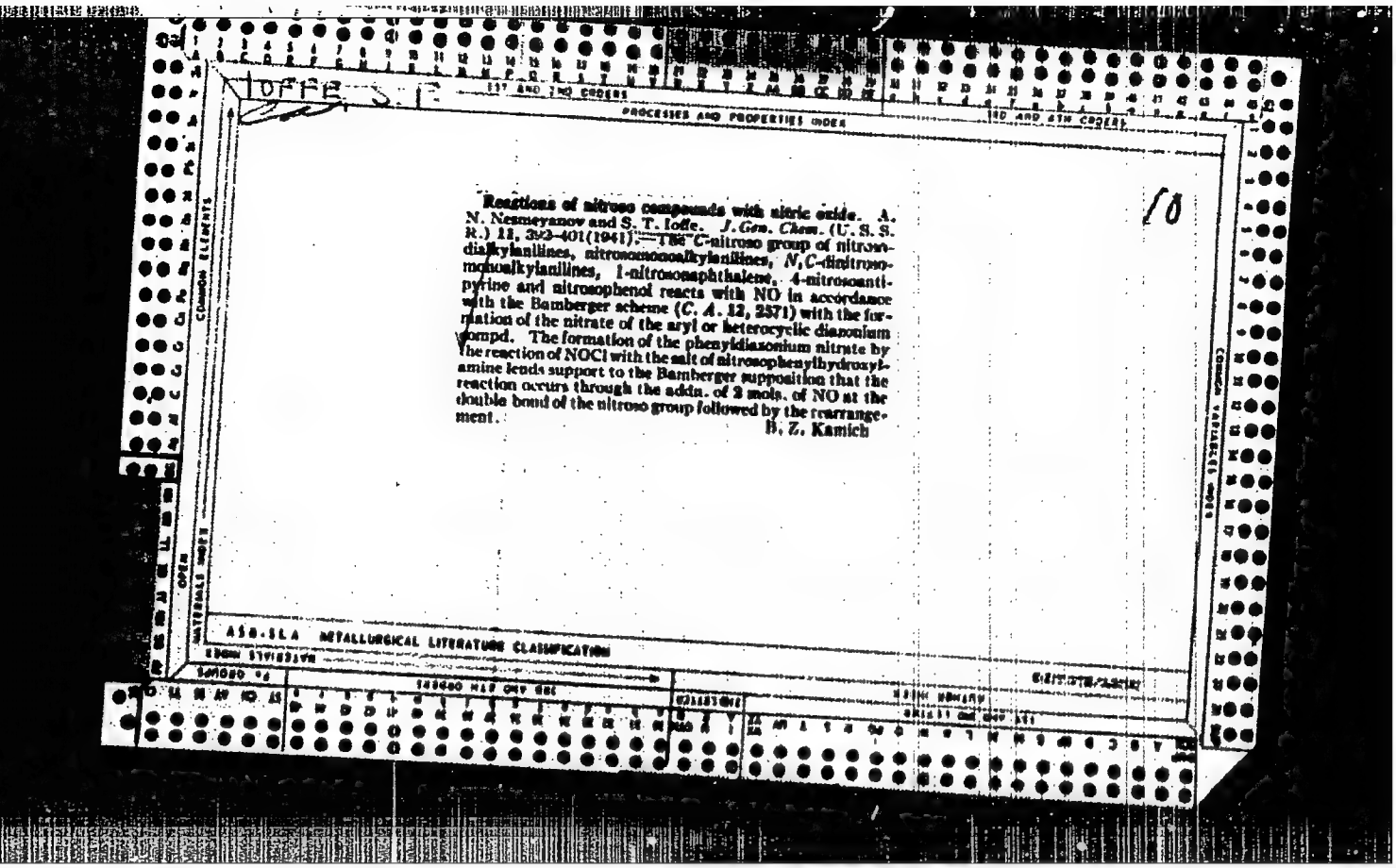

IOFFE S. F.

PROCESSES AND PROPERTIES INDEX

10

Reactions of nitroso compounds with nitric oxide. A. N. Nesmeyanov and S. T. Ioffe. *J. Gen. Chem.* (U. S. S. R.) 11, 393-401(1941).—The *C*-nitroso group of nitrosodialkylanilines, nitrosomonoalkylanilines, *N,C*-dinitrosomonoalkylanilines, 1-nitrosonaphthalene, 4-nitrosoantipyrine and nitrosophenol reacts with NO in accordance with the Bamberger scheme (*C. A.* 12, 2371) with the formation of the nitrate of the aryl or heterocyclic diazonium compd. The formation of the phenyldiazonium nitrate by the reaction of NOCl with the salt of nitrosophenylhydroxylamine lends support to the Bamberger supposition that the reaction occurs through the addn. of 2 mols. of NO at the double bond of the nitroso group followed by the rearrangement.

B. Z. Kamich

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, S. T., et al.

Science

Manual on organomagnesium compounds. v. 3. (Sinteticheskie metody v oblasti metalloorganicheskikh soyedinenii, no. 2). Moskva, Izd-vo AN SSSR, 1950.

Monthly List of Russian Accessions, Library of Congress, October 1952. UNCLASSIFIED.

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

USSR/Chemistry - Organometallic Compounds Sep/Oct 51

"Contributions of Russian Chemists to the Development of Magnesium-Organic [Grignard] Synthesis (To the 50th Anniversary of Grignard's Synthesis)," S. T. Ioffe, Moscow

"Uspekh Khim" Vol XX, No 5, pp 621-656

Points out that the Kazan' school was the 1st to apply Zn organic compds in synthetic work and that out of 5,000 major contributions dealing with the use of Mg compds in synthesis, 700 were published by Russians (cf. S. T. Ioffe, A. N. Nesmeyanov, "Handbook of Magnesium-Organic Compounds,"

191T12

USSR/Chemistry - Organometallic Compounds (Contd) Sep/Oct 51

Moscow, 1950). Discusses use of Zn-org compds, synthesis of aliphatic hydrocarbons and their functional derivs, synthesis of acetylene deriv, application of Mg compds in the fld of terpene chemistry, use of Bg-org compds in the synthesis of other organoelemental compds (work by A. N. Nesmeyanov, K. A. Kocheshkov, et al; G. Kamay; P. P. Shorygin et al; etc.), industrial Mg syntheses with the aid of Mg-org compds prepd in the absence of ether (Shorygin's pioneering work on this type of synthesis and its applications in industrial production of synthetic essential oils), anomalies in Mg-org synthesis.

191T12

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, S. T.

191T14

USSR/Chemistry - Organometallic Compounds Sep/Oct 51

"Review of S. T. Ioffe and A. N. Nesmeyanov's 'Handbook of Magnesium-Organic Compounds,' Vol I-III," Ya. T. Eydus

"Uspekh Khim" Vol XX, No 5, pp 671, 672

Reviews in some detail this work, which is a part of the series "Synthetic Methods in the Field of Organometallic Compounds" published under the general editorial supervision of Acad A. N. Nesmeyanov and K. A. Kocheshkov, Corr Mem, Acad Sci USSR. States that all references to

191T14

USSR/Chemistry - Organometallic Compounds (Contd) Sep/Oct 51

reactions involving Mg-org compds and listed in "Chem Zentralblatt," 1899 - 1940, and "Chem Abstracts," 1941 - Jan 1, 1948, as well as Russian and USSR work in this fld not listed by these 2 journals (altogether more than 13,000 reactions) have been included in the handbook. According to Eydus, the handbook is well published and indexed. Published by Press Acad Sci USSR, M-L, 1950.

191T14

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, S. T.

(3)

Chemical Abst.
Vol. 48 No. 4
Feb. 25, 1954
General and Physical Chemistry

Theory of tautomeric equilibrium. Effect of solvent on the acidity of the tautomeric forms and position of keto-enol equilibrium. M. I. Kabachnik and S. T. Ioffe (Inst. Org. Chem., Acad. Sci. U.S.S.R., Moscow). *Doklady Akad. Nauk S.S.S.R.* 91, 813–8(1953).—It was previously shown (*C.A.* 46, 8490f) that the const. of tautomeric equil. K_{TS} can be expressed as $K_{TS} = K_{KS}/K_{SS}$, where K_{KS} is the const. of acidic ionization of ketonic forms in a given solvent, and K_{SS} is the const. of ionization of the enolic forms. By the use of the Brönsted concept of protolytic equilibria and soln. of the 2 simultaneous equations: $pK_{KS_1} = pK_{KS_2} + \text{const.}$ and $pK_{SS_1} = pK_{SS_2} + \text{const.}$ gives $pK_{TS_1} = pK_{TS_2} + \text{const.}$ for enol-keto systems in 2 solvents S_1 and S_2. Exptl. detn. of ionization consts. of tautomeric compds., however, yields only some summary const. of the equil. mixt. (*ibid.* 83, 859(1952)). However, exptl. detn. of the ionization const. of the equil. system $K_{KS.S}$ and detn. of the const. of tautomeric equil. K_{TS} permits the calcn. of the individual ionization consts. from: $K_{KS} = K_{KS.S}(K_{TS} + 1)$ and $K_{SS} = K_{KS.S}(K_{TS} + 1)/K_{TS}$. The consts. $K_{KS.S}$ were detd. by measurement of pH of partially neutralized solns. by means of a glass electrode. Calcns. of $K_{KS.S}$ were made by the formula: $K_{KS.S} = ([Na^+] + [H^+] - (K_w/[H^+]))[H^+]/[M - ([Na^+] + [H^+] - (K_w/[H^+]))]$. Plots of pK_{TS_1} and pK_{TS_2} give linear curves, justifying the above formulation and permitting the calcns. of the individual consts. in solvent pairs of H_2O and 70% aq. dioxane. The following values are found for the enol content in water and aq. dioxane: acetylacetone 19% and 53%; Et acetoacetate 0.5 and 3%; benzoylacetone 48% and 81%; formylcyclopentanone 40% and 76%; 2-methylindanedione 1% and 6%; Et benzoylacetate 1% and 6%. The calcd. values of K_{TS}, $K_{KS.S}$, K_{KS}, and K_{SS} are tabulated.

G. M. Kosolapoff

AF 7-28-54

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

KABACHNIK, M.I.; IOFFE, S.T.; MASTRYUKOVA, T.A.

Theory of tautomeric equilibrium in solutions. Tautomerism of dialkylthiophosphates. Zhur.ob.khim. 25 no.4:684-693 Ap'55. (MLRA 8:7)

1. Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR.
(Thiophosphates) (Tautomerism)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

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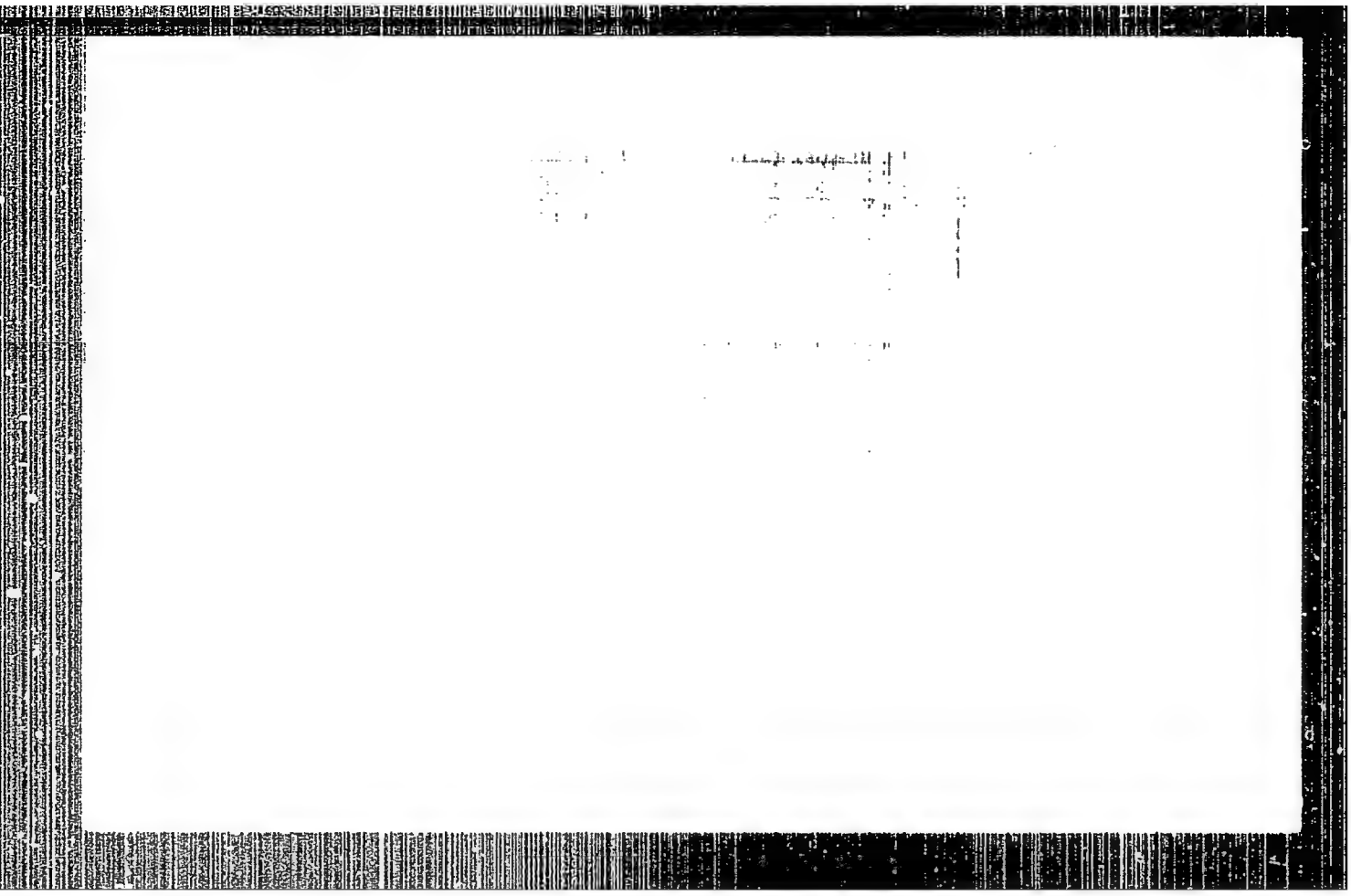

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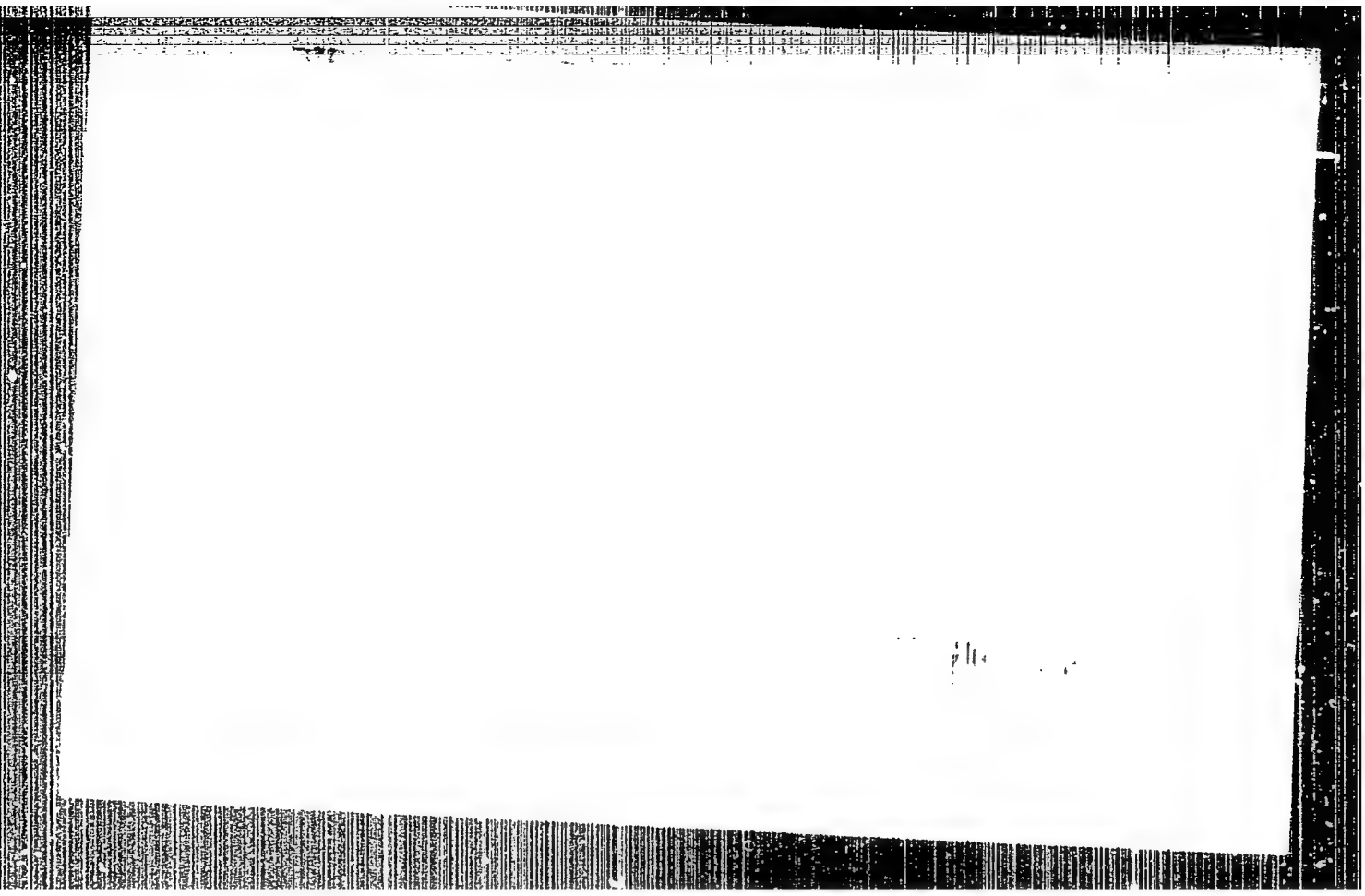

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, S. T.

"A Study of Tautomerism of Organophosphorous Compounds by Potentiometry"
paper presented at Nn First Conference of Phosphorous Compounds, Kazan, 8-10 Dec 56

SO: B-3,084, 841

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

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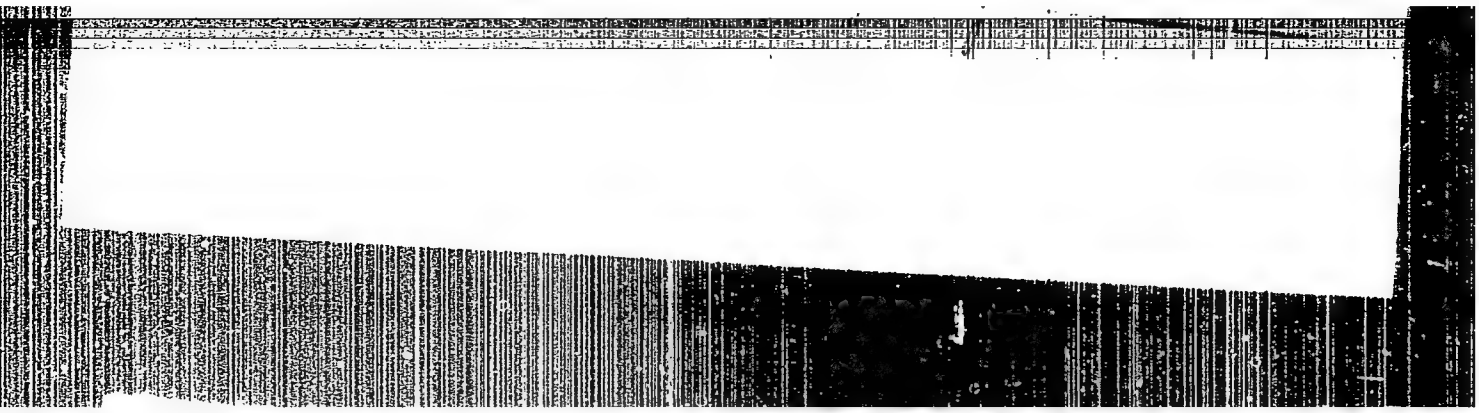

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, S. T. (Institute of Elementary Organic Compounds AS USSR, Moscow)

"Research on Tautomerism of Organophosphorus Compounds by the Potentiometric Method" (Issledovaniye tautomerii fosfororganicheskikh soyedinenly potentsiometricheskim metodom)

Chemistry and Uses of Organophosphorous Compounds
(Khimiya i primeneniye fosfororganicheskikh soyednenly),
Trudy of First Conference, 8-10 December 1955, Kazan,
pp. Published by Kazan Affil. AS USSR, 1957
76-90

Report discussed by A. Ye. Arbuzov, Kazan Aff. AS USSR

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

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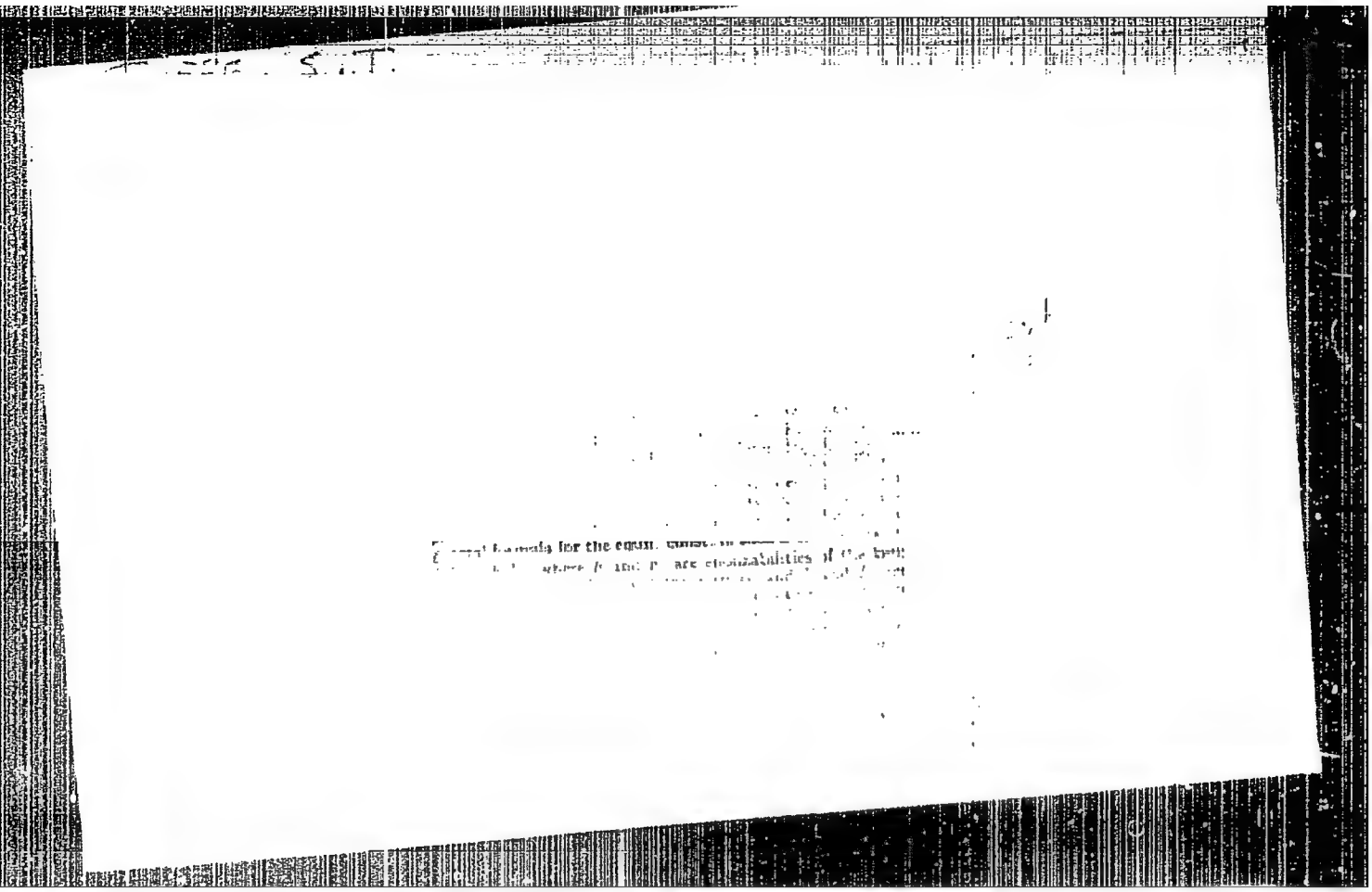

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

Ioffe, S.T.

KABACHNIK, M.I.; IOFFE, S.T.; VATSURO, K.V.

Cis-trans-enol tautomerism. Ukr. khim. zhur. 23 no.5:602-614 '57.
(MLRA 10:11)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Tautomerism)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

62-58-5-16/27

AUTHORS: Kabachnik, M. I., Ioffe, S. T.

TITLE: On the Investigation of Tautomery in Aprotic Solvents (K izucheniyu tautomerii v aprotnykh sredakh)

PERIODICAL: Izvestiya Akademii Nauk SSSR Otdeleniye Khimicheskikh Nauk, 1958, Nr 5, pp. 628 - 630 (USSR)

ABSTRACT: According to Gammet (Reference 1) a difference must be made between ionization and dissociation in solutions. According to Izmaylov (Reference 2) the process of acid-dissociation consists of the following equilibrium-reactions: The solvatation of the neutral acid- molecule, the dissociation of the solvate with the formation of solvatated ions and the association of these ions in ion-pairs. Already earlier a general potentiometric method for the determination of the constants of the tautomeric equilibrium in conducting media was worked out. In the present report they describe the colorimetric method elaborated by them for the determination of the constants of protolysis in aprotic solvents with low dielectricity-constant. The neutralization-reaction of the acid in aprotic solvents with low dielectric constant leads to the formation of non-dissociated

Card 1/2

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

On the Investigation of Tautomery in Aprotic Solvents 62-58-5-16/27

ion-pairs. The values n are practically equal to 1. The consideration of Brensted' dependence makes the application of the constants of the protolysis for the determination of the constants of the tautomeric equilibrium possible. There are 2 figures, 1 table and 7 references, 3 of which are Soviet.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute for Elemental-organic Compounds AS USSR)

SUBMITTED: December 17, 1957

1. Organic solvents--Chemical reactions 2. Organic solvents --Analysis 3. Acid-base equilibrium--Analysis 4. Colorimetry--Applications

Card 2/2

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

AUTHORS: Movsesyan, M. Ye., Kabachnik, M. I., Ioffe, S. T., Vatsuro, K. V. SOV/48-22-9-32/40

TITLE: Investigation of the Keto-Cis-Trans-Enol Equilibrium by Means of Infrared Absorption Spectra (Issledovaniye keto-tsis-trans-enol'nogo ravnovesiya pri pomoshchi spektrov infrakrasnogo pogloshcheniya)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya fizicheskaya, 1958, Vol 22, Nr 9, pp 1126 - 1130 (USSR)

ABSTRACT: This paper is an attempt to show the cis-trans enol tautomerism in keto-enol compounds by means of infrared absorption and to estimate the relative numbers of stereoisomeric variants. The investigation covered the infrared absorption spectra of acetic ester, of ethyl ester, of cyclohexanonic- and of cyclopentanone carboxylic acids, of α secondary butyl acetic ester, and of formyl phenyl acetic ester. Chloroform, benzene, toluene, diethyl ether, carbon tetrachloride and n.hexane served as solvents. The relative intensities of the absorption bands of the keto- and enol variants of the substances in question were compared with the equilibrium constants

Card 1/3

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

of acetic ester found by chemical methods. Experimental chemical investigations of a number of keto-enol compounds showed (Ref 1) that the cis-fixed anols accurately adhere to Meyer's law. The equilibrium constant of substances which only exhibit a trans-enol form(trans-fixed enol) is independent of the solvent. Two series of experiments showed that 1) the choice of acetic ester as a standard solvent is justified and 2) that L' is a constant quantity. Hence it was possible to set up the formula (Ref 7) $K_T = EL + E_1$. Keto-enols, in the solution of which cis- and trans-enol variants are contained are also characterized by a linear function of K_T versus L. Quantitative measurements of the keto-enol equilibrium which were carried out by chemical methods and by infrared absorption spectra exhibit good accordance. Spectroscopic evidence also validates the general formula for the equilibrium constant of the keto-cis-trans-enol tautomerism. There are 6 figures and 7 references, 3 of which are Soviet.

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

Investigation of the Keto-Cis-Trans-Enol Equilibrium by Means of Infrared Absorption Spectra SOV/48-22-9-32/40

ASSOCIATION: Fizicheskiy institut im. P.N.Lebedeva Akademii nauk SSSR (Institute of Physics imeni P.N.Lebedev, AS USSR) Komissiya po spektroskopii Akademii nauk SSSR (Committee of Spectroscopy, AS USSR) IEOS Akademii nauk SSSR (IEOS, AS USSR)

Card 3/3

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

SOV/74-27-8-7/7

AUTHOR: Ioffe, S. T. (Moscow)

TITLE: The Vinylation by Means of the Grignard Reaction (Vinilirovaniye posredstvom reaktsii Grin'yara)

PERIODICAL: Uspekhi khimii, 1958, Vol. 27, Nr 8, pp. 1010-1024 (USSR)

ABSTRACT: Among the many types of syntheses using organomagnesium compounds no reactions have hitherto been known permitting the use of the Grignard reagent. Already Krestinskiy showed that under the influence of magnesium on the ether solution of vinyl bromide no organomagnesium compound can be obtained (Refs 1, 2 and 3). The author refers to the Austerweil patent (Austervayl') on the formation of isoprene in the reaction CH_2=CHBr and $ClC(CH_3)$=CH_2 in the presence of magnesium, and also mentions some other papers (Refs 4 - 14) in order to show that in the practical application of organomagnesium syntheses a gap is found between the Grignard reagent containing saturated halogen alkyls on the one hand and the Iotsich compounds: RC≡CMgBr and BrMgC≡CMgBr on the other hand (Ref 15). The synthesis of organomagnesium compounds with a vinyl radical under the influence of magnesium upon the halides

Card 1/3

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

The Vinylation by Means of the Grignard Reaction

>C = C - X (where X is a chlorine or a bromine) in a tetrahydrofurane medium carried out by Normant (Norman) is discussed in detail. The organomagnesium compounds produced containing a vinyl radical (Normant reagents) have the same reactivity as the organomagnesium compounds of halogen alkyls and alkinyls. The production of various unsaturated amino alcohols (Ref 28) proceeding from the amino aldehydes of chlorine hydrines as described by Normant is discussed in detail. In contrast to the reaction of aliphatic Grignard reagents with chloral the Normant reagents with chloral form normal reaction products like the aromatic Grignard reagents: Trichloromethyl-vinyl carbinols. With respect to the elements of the IV. column there are reasons to assume the production of tetravinyl silane under the action of magnesium chloro-vinyl on the tetrachloro silicon in the medium of pentane. The synthesis of the vinyl derivatives of silicon (Ref 36) carried out by Petrov and Mironov is mentioned. The author further mentions that American authors (Ref 39) produced similar substances in good yield also from magnesium chloro-vinyl. Finally he mentions that with respect to the elements of the V. group the description for the production of trivinyl deriva-

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The Vinylation by Means of the Grignard Reaction SOV/74-27-8-7/7

tives of phosphorus, arsenic, antimony and bismuth from the corresponding halides of the elements may be found in the papers of American authors (Ref 41). The present article is to demonstrate the variety of possibilities of synthesis by employing organomagnesium compounds containing vinyl-groups. A table of the reactions carried out is enclosed. There are 1 table and 41 references, 5 of which are Soviet.

1. Grignard reagents--Synthesis 2. Vinyl compounds--Chemical reactions

Card 3/3

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

KABACHNIK, M.I.; IOFFE, S.T.; MASTRYUKOVA, T.A.

Tautomerism in aprotic media. Tautomeric equilibrium of phosphorus thio acids in benzene and chlorobenzene. Zhur.ob.khim. 30 no.8:2763-2767 Ag '60. (MIRA 13:8)

1. Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR.
(Tautomerism) (Phosphorus acids)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

KABACHNIK, M.I.; IOFFE, S.T.; POPOV, Ye.M.; VATSURO, K.V.

Trans-enolization. Part 1: Effect of solvents on the enolization of trans-fixed keto enols. Zhur.ob.khim. 31 no.7:2122-2131 Jl '61. (MIRA 14:7)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Ketone) (Isomerism)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

KABACHNIK, M.I.; IOFFE, S.T.; POPOV, Ye.M.; VATSURO, K.V.

Transenolization. Part 2: Effect of solvents on the transenolization of α-alkylacetoacetic esters. Zhur.ob.khim. 31 no.8:2682-2692 Ag '61. (MIRA 14:8)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Acetoacetic acid) (Isomerization)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, S.T.; POPOV, Ye.M.; VATSURO, K.V.; TULIKOVA, Ye.K.; KARACHNIK, M.I., akademik

Keto cis-trans-enol equilibrium of 3-alkylacetylacetones. Dokl. AN SSSR 144 no.4:802-805 Je '62. (MIRA 15:5)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Acetone) (Isomerization)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, Saveliy Timofeyevich; NESMEYANOV, Aleksandr Nikolayevich; KOCHESHKOV, K.A., otv. red.; OKHLOBYSTIN, O.Yu., red.; DOROKHINA, I.N., tekhn. red.

[Methods of the chemistry of organometallic compounds; magnesium, beryllium, calcium, strontium, barium] Metody elementno-organicheskoi khimii; magnii, berilliі, kal'tsii, strontsii, barii. Pod obshchei red. A.N.Nesmeianova i K.A. Kocheshkova. Moskva, Izd-vo AN SSSR, 1963. 561 p. (MIRA 16:12)

1. Chlen-korrespondent AN SSSR (for Kocheshkov).
(Organometallic compounds)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

KABACHNIK, M.I.; IOFFE, S.T.

Effect of steric factors on keto-cis-trans-enol equilibrium of α-cycloalkylacetoacetic esters. Izv.AN SSSR.Otd.khim.nauk no.2:339-343 F '63. (MIRA 16:4)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Acetoacetic acid) (Tautomerism)

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

L 5064-66 EWT(m)/EPF(c)/EWF(j)/T/ETC(m) RM/DS/WW

ACCESSION NR: AP5025507 UR/0062/65/000/009/1556/1564 61/49 B

541.634+541.67

AUTHOR: Molin, Yu. N.; Ioffe, S. T.; Zayev, Ye. Ye.; Solov'yeva, Ye. K.; Kuguchova, Ye. Ye.; Voyevodskiy, V. V.; Kabachnik, M. I.

TITLE: Nuclear magnetic resonance study of the keto-enol equilibrium of 3-alkylacetylacetones

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 9, 1965, 1556-1564

TOPIC TAGS: NMR spectroscopy, ketone, NMR

ABSTRACT: NMR spectra of the following compounds were studied: 3-methyl-, 3-ethyl-, 3-n-propyl-, 3-isobutyl-, 3-isopropyl-, and 3-sec-butylacetylacetone, and also 2-isopropoxy-2-penten-4-one. The spectra were taken with a JNM-3 instrument (40 Mc) and some were also recorded with an RS-2 spectrometer (60 Mc) at ~ 25C, and the content of enol forms was determined. Alkylacetylacetones with unbranched substituents were shown to contain cis-enol forms at equilibrium with the ketone; this agrees with chemical data. Compounds with branched substituents (3-isopropylacetylacetone and 3-sec-butylacety-

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

L 5064-66

ACCESSION NR: AP5025507

lacetone) are almost pure ketones. The slight enolization of these substances does not permit the classification of the enol form in the cis or trans series on the basis of the NMR method alone. "Measurements with the RS-2 instrument were made at the Tsentral'myy institut khimii Vengerskoy Akademii nauk (Central Chemistry Institute of the Hungarian Academy of Sciences) with the direct participation of Dr. L. Radich, to whom the authors express their gratitude." Orig. art. has: 5 figures and 2 tables.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute of Organometallic Compounds, Academy of Sciences, SSSR); Institut khimicheskoy kinetiki i goreniya Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Chemical Kinetics and Combustion, Siberian Branch, Academy of Sciences, SSSR)

SUBMITTED: 04Jul63 ENCL: 00 SUB CODE: OC, NP

NO REF SOV: 000 OTHER: 014

Card 2/2

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

KABACHNIK, M.I., akademik; IOFFE, S.T.

Application of correlation equations to keto-enol equilibrium. Dokl. AN SSSR 165 no.5:1085-1087 D '65.
(MIRA 19:1)

1. Institut elementoorganicheskikh soyedineniy AN SSSR. Submitted July 1, 1965.

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, S.T.

"The study of tautomerism in aprotonic media."

Khimiya i Primeneniye Fosforerganicheskikh Soyedineniy (Chemistry and application of organophosphorus compounds) A. YE. Arbuzov, Ed. Publ. by Kazan Affil. Acad. Sci. USSR, Moscow 1962, 632 pp.

Collection of complete papers presented at the 1958 Kazan Conference on Chemistry of Organophosphorus Compounds.

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

BALUYEVA, G.A.; IOFFE, S.T.

Beryllium, calcium, strontium, and barium organic compounds.
Usp.khim. 31 no.8:940-962 Ag '62. (MIRA 15:8)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Organometallic compounds)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, S. Ya.

35591 K voprosu o lechenii vospalitel'nykh zabolevaniy zhenskoy polovoy sfery perelivaniyem krovi drobnymi dozami. Trudy sev-oset. Gos. Med. In-ta, Vyp. 4, 1949, S. 69-73 (page 32)

SO: Letopis' Zhurnal'nykh Statey, Vol. 45, 1949

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, S.Ya., kandidat meditsinskikh nauk

Delivery of twins in uterus bicornis. Akush. i gin. 33 no.2:102-103 Mr-Ap '57. (MIRA 10:6)

1. Iz kafedry akusherstva i ginekologii (zav. - prof. S.D.Astrinskiy) Severo-Osetinskogo meditsinskogo instituta na baze rodil'nogo doma No.2 (glavnyy vrach S.G.Dotseva).

(TWINS
in uterus bicornis, normal delivery)
(DELIVERY
twins, in uterus bicornis)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

SHEMET, Aleksey Savel'yevich; IOFFE, S.Ye., redaktor; SAVICH, M.P., redaktor; OYSTRAKH, V.G., tekhnicheskiy redaktor

[Work practice of a crew of conveyor movers] Opyt raboty kompleksnoi brigady posadoperenoschikov, Alma-Ata, Kazakhskoe gos. izd-vo, 1956. 13 p. (MLRA 9:10)

1. Brigadir kompleksnoy brigady posadoperenoschikov uchastka No. 3 shakhty No.35 kombinata "Karagandaugol'" (for Shemet)
(Mine haulage)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

TAKIROV, Musatay; IOFFE, S.Ye., redaktor; ZAV'YALOV, G.P., redaktor; OYSTRAKH, V.G., tekhnicheskiy redaktor

[The party group in the struggle for technical progress] Partiinaia gruppa v bor'be za tekhnicheskii progress. Alma-Ata, Kazakhskoe gos. izd-vo, 1956. 18 p. (MLRA 9:10)

1. Mashinist ugol'nogo kombayna, partgrupporg shakhty No.1-bis tresta Kirovugol' kombinata "Karagandaugol'" (for Makirov)
(Communist Party of the Soviet Union--Party work)
(Coal mines and mining)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

KULAKOV, Nikolay Pavlovich; IOFFE, S.Ye., redaktor; ZAV'YALOV, G.P., redaktor; OYSTRAKH, V.G., tekhnicheskiy redaktor

[The communists are the organizers of the struggle for coal; the work practice of the Party group in the Kalinin Mine of the "Karagandaugol'" combine] Kommunisty - organizatory bor'by za ugol'; kombinata "Karagandaugol'". Alma-Ata, Kazakhskoe gos. izd-vo, 1956. 14 p. (MIRA 9:10)

(Communist Party of the Soviet Union--Party work)
(Coal mines and mining)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, Solomon Yefimovich; VAL'SHTEYN, G., redaktor; DOLGOPYATOV, Yu., redaktor; OYSTRAKH, V., tekhnicheskiy redaktor

[General combined work crews in mines] Skvoznye kompleksnye brigady na shakhte. Alma-Ata, Kazakhskoe gos. izd-vo, 1956. 13 p. (MLRA 9:10)
(Coal mines and mining)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, T.P.

Treatment of hypertension with an infusion of eucalyptus under polyclinical conditions. Sov. med. 24 no.6:106-107 Je '60. (MIRA 13:9)

1. Iz poliklinik No 7 Kuybyshevskogo rayona Moskvy.
(HYPERTENSION) (EUCALYPTUS)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, TS. I.

32412, Ioffe, Ts. I. K metodike izucheniya snosa bentiçheskikh organizmov rekoy i yego rol' v zaselenii vodohkranilishcha. Izvestiya Vsesoyuz. nauch.-issled. in-ta ozer. irech. ryb. khoz-va, t. XXIX, 1949, s. 75-95. --- Bibliogr: 12 nazv.

SO: Letopis' Zhurnal'nykh Statey, Vol. 44

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, TS.I.

Formation of benthonic fauna of Rybinsk Reservoir. Trudy probl. i tem.soveshch. no.2:32-40 '54. (MLRA 8:5)
(Rybinsk Reservoir--Fresh-water fauna)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, Ya.I.

Increase of food reserves in ponds by means of organic fertilizers.
Trudy probl. i tem. soveshch. ao.2:112-121 '54. (MLRA 8:5)
(Fish ponds)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

Foffe, Ts. I.

AG Increasing the nutrition base of fish ponds with organic fertilizer. Ts. I. Ioffe. *Trudy Problem. i Temat. Soveshchanii, No. 2, Problemy Gidrobiol. Vnutren. Vod No. 3*, 112-21(1954).—Horse manure, branches of alder, miscellaneous aquatic plants, and miscellaneous weeds were added to different ponds. The alder branches caused a higher reduction of O_2 than any other org. material, colored the waters, and increased the acidity, quantity of NH_4 salts, and of sol. Fe. Weeds were next in their effect, and manure was least of all treatments. J. S. Joffe

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, TS.I.

Effect of fertilizers on the increase in the food supply of ponds. (MLRA 10:4)
Trudy probl. i tem. sov. no.7:68-72 '57.
(Fish ponds) (Fertilizers and manures) (Fishes--Food)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, TS.M., starshiy nauchnyy sotrudnik

Behcet disease; personal observations. Vest. oft. 71 no.2:16-22 Mr-Ap '58. (MIRA 11:4)

1. Institut glaznykh bolezney imeni Gel'mgol'tsa (dir.-kand.med.nauk A.V. Roslavtsev)
(BEHCET SYNDROME, case reports)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, V.

PA 51/49T92

USSR/Radio Jun 49
Radio Receivers

"Requirements for a Radio Receiver," V. Ioffe, A. Godzevskiy, 3 pp

"Radio" No 6

Discusses A. Frolov's article which listed requirements for a high-quality receiver. Authors take exception to Frolov's conclusions on frequency response range for the speaker, maximum nonlinear distortion permissible, output power, number of bands, etc.

51/49T92

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

Ioffe, V.

4-11-33/34

AUTHOR: Ioffe, V., Engineer

TITLE: A Metallurgist's Notes (Zametki metallurga)

PERIODICAL: Znaniye - Sila, 1957, # 11, p 47 (USSR)

ABSTRACT: Under the heading "The Earth's Treasures" the article states that the Earth's crust contains approximately 775,000,000 billion tons of pure iron. The quantity of aluminum in the Earth's crust exceeds 1,370,000,000 billion tons and that of copper 2,000,000 billion tons, gold - 93.5 billion tons.

The next part of the article is entitled "The World's Output of Metals" and contains particulars about the production of cast iron, copper, aluminum, etc. at different times. The last part deals with the cost of 1 ton of metal, and contains comparative figures in regard to the quantity of electric power used for the production of various metals.

There are 6 figures.

AVAILABLE: Library of Congress

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE V.

ZENKOVICH, V., prof. doktor geogr. nauk; LAGUNOVA, I.; PETROVSKIY, Yu., zhurnalist; VERD'YE, Zhan; PETROV, S., insh.; NAUMOV, S., nauchnyy sotrudnik; IOFFE, V., insh.; DROZDOV, V., insh.

People of new specialties. Znan. sila 32 no.11:32-34 N '57. (MLRA 10:11)

1. Direktor Instituta rentgenologii i radiologii Ministerstva zdravookhraneniya (for Lagunova)

(Science)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, V.

Greatest document of our time. Plast.massy no.10:1-2 '61.
(MIRA 15:1)

(Plastics)

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, V.

Paradoxes in insulation. Znan.-sila 37 no.6:46 Je '62.
(MIRA 15:9)
(Electric insulators and insulation)

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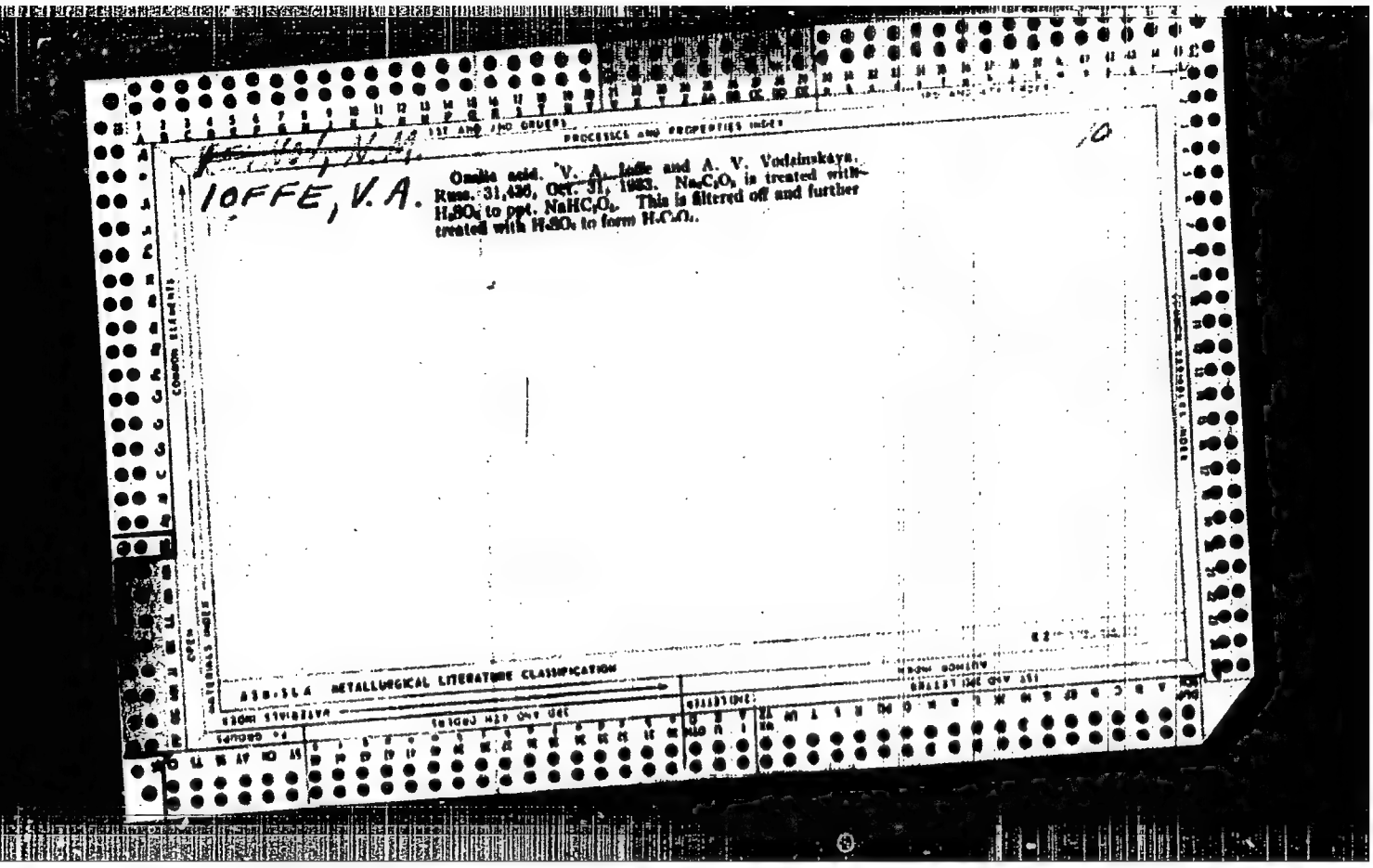

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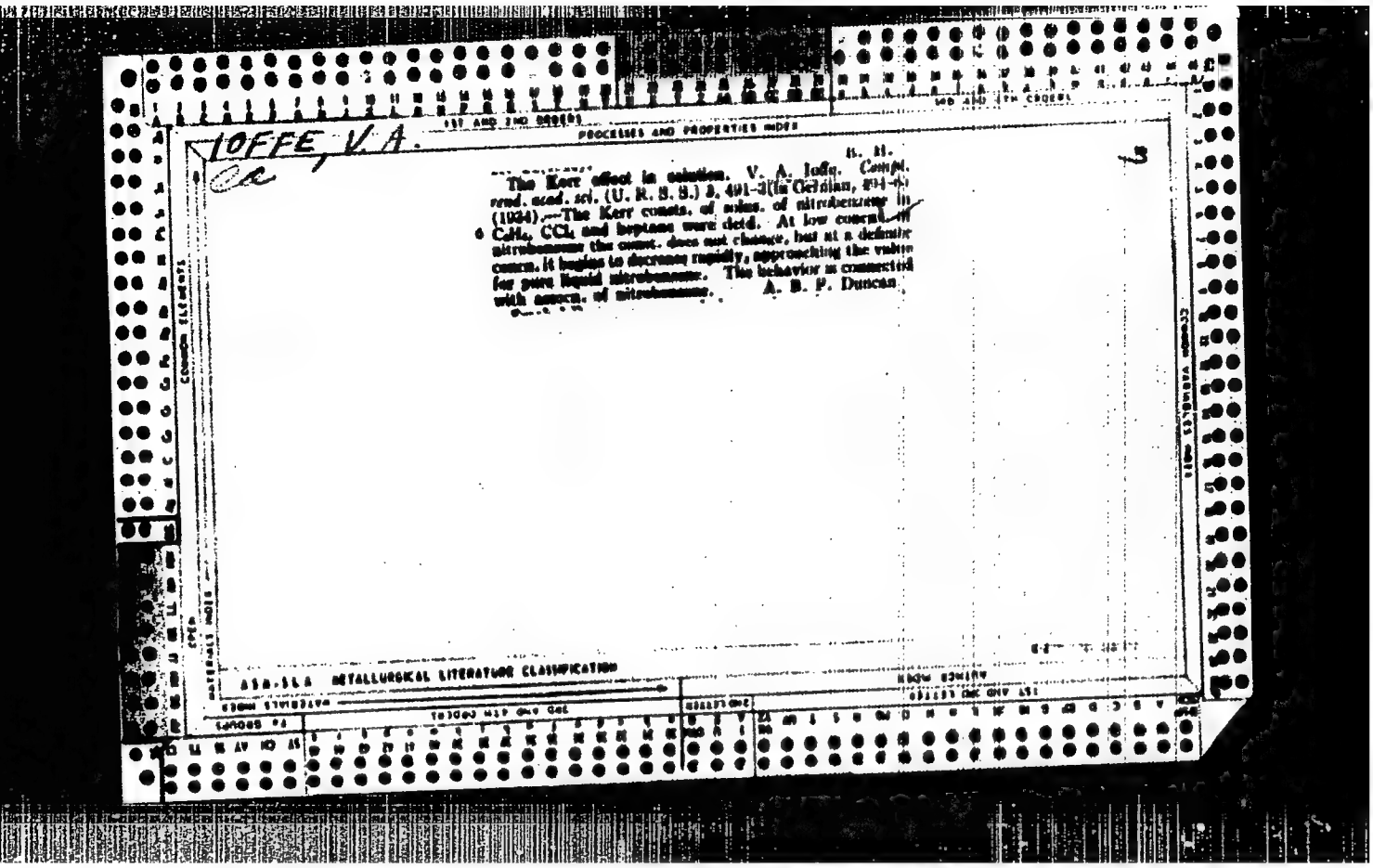

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

IOFFE, V.A.

Ca

B. H.

The Kerr effect in solution. V. A. Ioffe. Compt. rend. acad. sci. (U. R. S. S.) 3, 491-3 (in German, 494-6) (1934).—The Kerr consts. of solns. of nitrobenzene in C_6H_6, CCl_4 and heptane were detd. At low concns. of nitrobenzene the const. does not change, but at a definite concn. it begins to decrease rapidly, approaching the value for pure liquid nitrobenzene. The behavior is connected with assocn. of nitrobenzene. A. B. F. Duncan.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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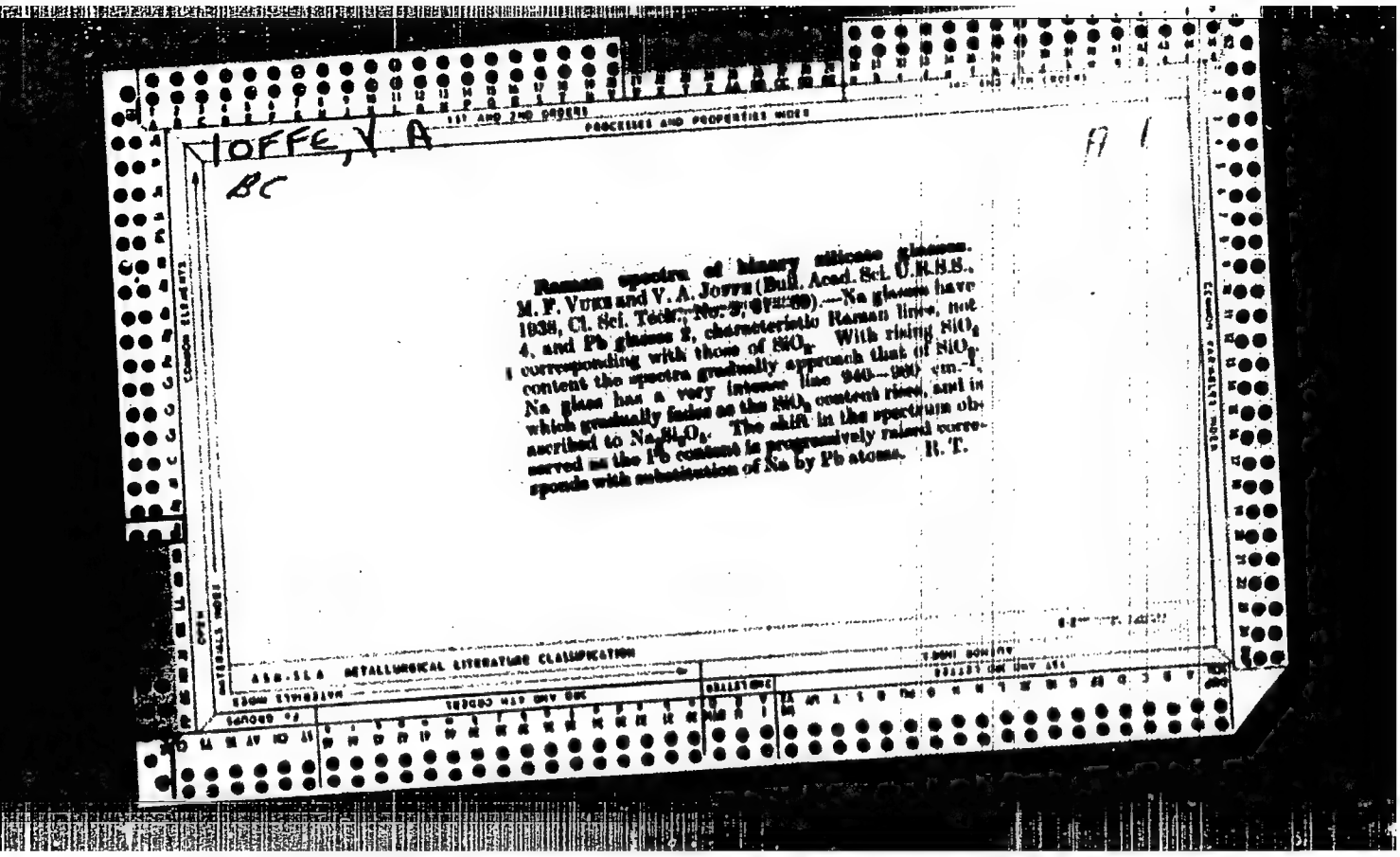

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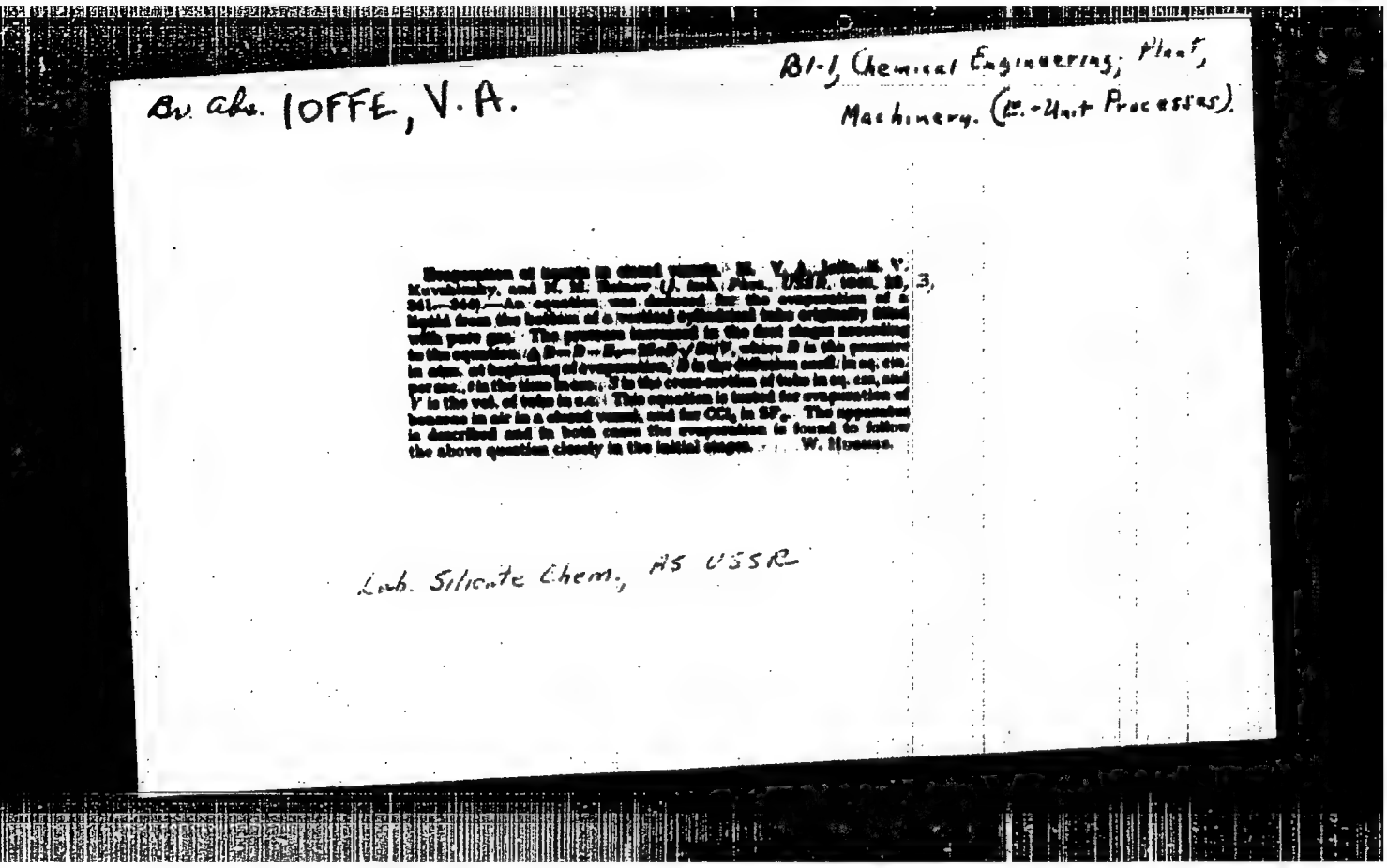

Bv. abs. IOFFE, V.A.

B1-1, Chemical Engineering; Plant, Machinery. (E.-Unit Processes).

Evaporation of liquids in closed vessels. [illegible] V. A. Ioffe, [illegible] V. Kuvshinsky, and N. M. Reinov (J. tech. Phys., USSR, [illegible], 3, 341—344).—An equation was deduced for the evaporation of a liquid from the bottom of a vertical cylindrical tube originally filled with pure gas. The pressure increased in the first stages according to the equation: $\Delta B = B - B_0 = 2SaB\sqrt{Bt}/V$, where B is the pressure in atm. at beginning of evaporation, B is the diffusion coeff. in sq. cm. per sec., t is the time in sec., S is the cross-section of tube in sq. cm., and V is the vol. of tube in c.c. This equation is tested for evaporation of benzene in air in a closed vessel, and for CCl_4 in SF_6. The apparatus is described and in both cases the evaporation is found to follow the above question closely in the initial stages. W. Hughes.

Lab. Silicate Chem., AS USSR

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, V. A.

Temperature dependence of the dielectric loss in two-component silicate glass systems (K_2O-SiO_2 and PbO-SiO_2). V. A. Ioffe. *Doklady Akad. Nauk S.S.S.R.* 91, 405-8(1953).—The dielec. loss of K_2O-SiO_2 systems (contg. 17.3-22.7 mol. % K_2O) and of PbO-SiO_2 systems (34.2-59.2 mol.% PbO) was studied for the temp. range 12 to 420°K. at a frequency of 1 Mc. For the potassium silicate systems, the max. of dielec. loss occur below 100°K. and the min. occur between 130 and 160°K. Above 300°K. the dielec. loss increases with temp. in an exponential manner. For lead silicate glass systems as well as lead silicate glass contg. TiO_2, there is a max. of dielec. loss at about 100°K. but no increase of the loss with temp. for the range studied. The following explanations are given. At low temps., there is a decrease of the dielec. loss with temp. since the loss is due to deformation of the silica-oxygen net work. As the temp. increases, the mobility of the K ions becomes significant and the dielec. loss in potassium silicate systems increases. For lead silicates, the mobility of Pb ions remained unimportant for all temps. studied, and consequently no increase in dielec. loss is observed with increasing temp.

Paul V. Pfau

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, V. A. FD-434

USSR/Physics - Dielectric losses

Card 1/1 : Pub. 153 - 4/18

Author : Ioffe, V. A.

Title : Dielectric losses in silicate glasses

Periodical : Zhur. tekh. fiz. 24, 611-621, Apr 1954

Abstract : Investigates the temperature dependence of the dielectric losses of glasses of the systems K_2O-SiO_2, PbO-SiO_2, Na_2O-SiO_2, etc. in the temperature range 120° to 420° K at a frequency of 10^5 cycles. Finds that for low temperatures the dielectric losses of all glasses studied possess a maximum that shifts at higher frequencies towards higher temperatures. Thanks Prof. A. I. Shal'nikov and G. A. Smolenskiy. Briefly surveys the literature. 28 references, including 12 Soviet.

Institution : —

Submitted : June 23, 1953

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, V. A.

USSR/Chemical Technology. Chemical Products and Their Application -- Silicates. Glass. Ceramics. Binders, I-9

Abst Journal: Referat Zhur - Khimiya, No 2, 1957, 5182

Author: Ioffe, V. A.

Institution: Academy of Sciences USSR

Title: Dielectric Losses in Silicate Glasses

Original Publication: Sb. Stroyeniye stekla, M.-L., AN SSSR, 1955, 258-263

Abstract: Description of the results of investigations of dielectric losses of two-component potassium-, lead- and sodium silicate glasses, and also of glasses containing magnesium ions. It was found that losses in lead glasses are almost not dependent on the composition; the same is also observed in potassium glasses, and only in the sodium glasses the losses increase appreciably with increase in Na_2O content. In the region of medium and low frequencies the dependence of losses on composition is very great, especially in the case of alkali glasses; losses increase rapidly with increasing content of alkali ions.

Card 1/1

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

Ioffe, V.A.

USSR/Chemical Technology. Chemical Products and their Application. J-12
Glass. Ceramics. Building Materials.

Abs Jour: Referat Zh.-Kh., No 8, 1957, 27627

Author : V.A. Ioffe.
Inst :
Title : Information.

Orig Pub: vSb: Stroyeniye stekla. M.-L., AN SSSR, 1955, 327.

Abstract: The author repudiates his former assertions that sodium bisilicate is found in sodium-silica glass. See also RZhKhim., 1957, 5166 and 5182.

-28-

Card : 1/1

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, V. A.

USSR/Chemical Technology. Chemical Products and Their Application -- Silicates. Glass. Ceramics. Binders, I-9

Abst Journal: Referat Zhur - Khimiya, No 2, 1957, 5183

Author: Ioffe, V. A.

Institution: Academy of Sciences USSR

Title: Reply to G. I. Skanavi

Original Publication: Sb. Stroyeniye stekla, M.-L., AN SSSR, 1955, 342-343

Abstract: It is pointed out that the neutralization effect manifests itself, in alkali glasses, not only as concerns dielectric losses and electric conductivity, but also by a lowering of the coefficient of linear expansion, increase in chemical stability, etc. This is not only indicative of the fact that alkali ions are bound stronger, but also that the silicon-oxygen network is more rigid in such glasses.

Card 1/1

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, V. A.

G-2

Category : USSR/Electricity - Dielectrics

Abs Jour : Ref Zhur - Fizika, No 1, 1957 No 1516

Author : Ioffe, V.A.
Title : Dielectric Losses in Alkali-Borate Glass at Low Temperatures

Orig Pub : Zh. tekhn. fiziki, 1956, 26, No 3, 516-525

Abstract : The dielectric loss angle of alkali-borate glasses of various compositions was measured in the 12 -- 300° K range at frequencies of 2.4×10^2 -- 10^6 cycles. The tan vs. T curve exhibits a maximum, the magnitude and position of which depends on the contents of the alkali oxide in the galss. In the author's opinion, the dielectric losses at low temperatures are caused by the relaxation of the elements of the structural grid of the glass. At room temperatures the activation energy of the process becomes comparable with the thermal-motion energy and the losses are cuased by the anharmonic-oscillatory motion of the structural elements. Upon mutual replacement of the alkali cations, the neutralization effect is observed when their total concentration reaches 25 molar percent and above.

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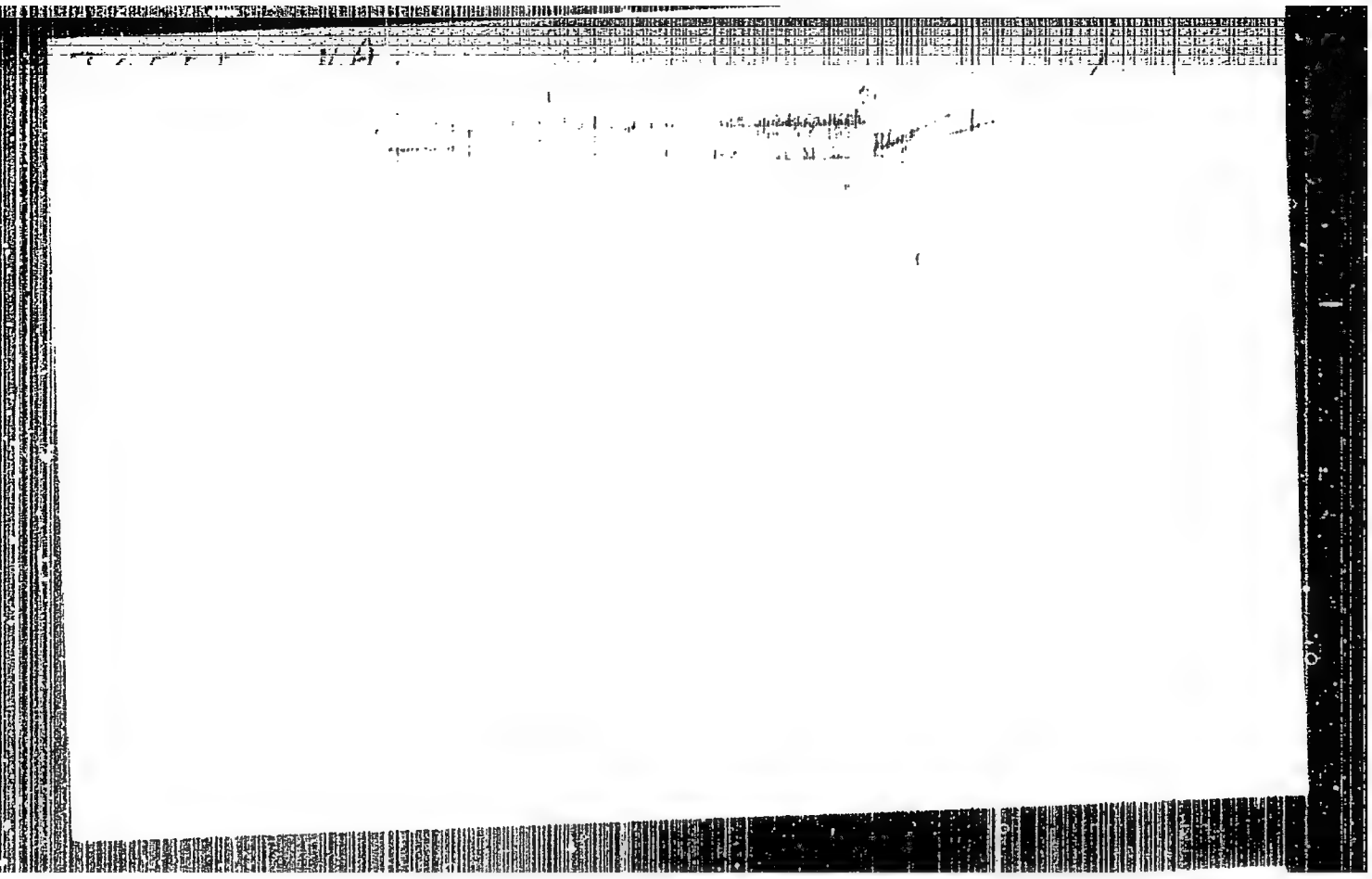

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

Ioffe, V.A.

57-27-7-7/40

AUTHOR: Ioffe, V. A.

TITLE: On the Nature of the Dielectric Losses in Sodium-Aluminum-Silicate Glasses (O prirode dielektricheskikh poter' v natrievoalyumosilikatnykh steklakh)

PERIODICAL: Zhurnal Tekhnicheskoy Fiziki, 1957, Vol. 27, Nr 7, pp. 1454 - 1461 (USSR)

ABSTRACT: The dependence of the dielectric losses on the oxygen number (polymerization-degree of the structural network) in the range of from 20 to 290°K at frequencies of 10^6, $2{,}3 \cdot 10^5$ and $1{,}7 \cdot 10^6$ cycles is investigated. It is shown that the dielectric losses increase with a decrease in the oxygen number in all glasses investigated (feldspar $1\ Na_2O \cdot 1\ Al_2O_3 \cdot 6\ SiO_2$, jade $1\ Na_2O \cdot 1\ Al_2O_3 \cdot 4\ SiO_2$, nephelite $1\ Na_2O \cdot 1\ Al_2O_3 \cdot 2\ SiO_2$, an intermediate product $1\ Na_2O$. $1\ Al_2O_3 \cdot 3\ SiO_2$, besides two glasses with an oxygen number below two were welded together: $1\ Na_2O \cdot 1\ Al_2O \cdot 3$, $9\ SiO_2$ and $1\ Na_2O \cdot 1, 2\ Al_2O \cdot 3, 8\ SiO_2$). It is shown that at room temperature the angle of the dielectric losses in glasses with equal oxygen number increases with increasing sodium-oxide content in the glass. In the range of low temperatures the angle is not dependent on the sodium-oxide content, but increases with increasing aluminum-oxide content

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APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

On the Nature of the Dielectric Losses in Sodium-Aluminum-Silicate Glasses

and with a decrease in the oxygen number. The supposition on the reconstruction of the glass-network and the transition of aluminum into the position of a modifier could not be considered well-founded in any of the glasses investigated. In the sodium-aluminum-silicates aluminum is in a tetrahedron-coordination, independent of the structure of the corresponding crystalline sodium-aluminum-silicate. The conception at present existing on the structure of the dielectric losses in the glasses are not sufficient for an explanation of the high value of the phase angle (loss angle) in sodium--aluminum-silicate glasses and its dependence on the oxygen number. The supposition is expressed that the displacements connected with the negative aluminum-oxygen-tetrahedrons of the holes form an additional source of loss in these glasses. It is to be expected that the electric properties beside the ion- and electron-processes can be determined in glasses which in the structural network possess ions with a valence different from four that isomorphously replace the silicon-ions. There are 8 figures, 1 table and 32 references, 11 of which are Soviet.

Card 2/3

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

57-27-7-7/40

On the Nature of the Dielectric Losses in Sodium-Aluminum-Silicate Glasses

ASSOCIATION: Institute for the Chemistry of Silicates AS USSR, Leningrad
(Institut khimii silikatov AN SSSR, Leningrad)

SUBMITTED: February 6, 1957

AVAILABLE: Library of Congress

1. Glass-Dielectric properties

Card 3/3

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, V.A.

57 - 9-10/40

AUTHORS Ioffe, V.A., Khvostenko, G.I., : Zonn, Z.N.

TITLE The Electrical Properties of Some Single Crystals and Polycrystalline Ferrites.
(Elektricheskiye svoystva nekotorykh monokristallov i polikristallicheskikh ferritov.)

PERIODICAL Zhurnal Tekhn. Fiz., 1957, Vol. 27, Nr 9, pp.1985-1995 (USSR)

ABSTRACT The dependence of the specific resistance, of the dielectricity constant, and of the angle of dielectric losses on temperature at sound frequencies and for solid solutions of nickel-ferrite and zinc-ferrite, of magnesium-ferrite and manganese-ferrite as well as in the case of two single crystals and a ceramic sample of a solid solution of cobalt-ferrite and zinc-ferrite was investigated. All ferrites investigated have a high dielectricity constant within the range of low frequencies and high temperatures. The dependence of the dielectricity constant on frequency and temperature is due to relaxation processes. It is shown that the dielectricity constant of ferrites is a property that is independent of their poly-

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

57-9-10/40

The Electrical Properties of Some Single Crystals and Polycrystalline Ferrites.

crystalline structure. The presence of ions of one and the same with different valence in the ferrites, in which case the ferrites are distributed statistically in equal crystallographic positions, cause - apart from through-conductivity - the occurrence of electron displacements under the influence of the field. These local displacements cause high electron polarisation in the ferrites.

There are 15 figures, 2 tables and 2 Slavic references.

ASSOCIATION: Institute for the Chemistry of Silicates AN USSR, Leningrad.
(Institut khimii silikatov AN SSSR, Leningrad.)

SUBMITTED: March 25, 1957
AVAILABLE: Library of Congress.

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APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

SOV/ -2 -10-9/40

24(6)
AUTHORS: Ioffe, V. A., Yanchevskaya, I. S.

TITLE: Dielectric Losses in Feldspars (Dielektricheskiye poteri v polevykh shpatakh)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, Vol 28, Nr 10, pp 2154-2164 (USSR)

ABSTRACT: This is an investigation of the temperature and frequency dependence of the loss angle tg δ and of the dielectric constant ε of a number of natural monocrystals of feldspars in the temperature range of 20 - 500°K and a frequency region of $5 \cdot 10^2$ - $5 \cdot 10^6$ cy. This paper covers the isomorphic series of sodium-potassium feldspars, the plagioclases (which are a continuous series of solid solutions of albite ($NaAlSi_3O_8$) with anorthite ($CaAl_2Si_2O_8$), and microline ($KAlSi_3O_8$). A resonance absorption and an anomalous dispersion of the dielectric constant was found to exist in all feldspars investigated at a frequency of $5 \cdot 10^5$ cps. In the range of 200 - 500°K the dielectric losses in feldspars are caused by resonance phenomena, resonance occurring

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by thermal excitation. If the temperature is raised, the resonance frequency also rises at first. This explains the existence of the maxima in the tg δ versus temperature function at sonic frequencies. In microline the tg δ and ε versus frequency functions exhibit two maxima and two domains with an anomalous dispersion of ε. As the resonance frequency observed in all feldspars is low and identical this resonance must necessarily be ascribed to electron processes. There is every indication that the resonance is due to the transition of an electron from one oxygen atom into another oxygen atom in the negatively charged aluminum-oxygen tetrahedron. This conception is, however, of a still preliminary nature. There are 21 figures, 1 table, and 8 references, 4 of which are Soviet.

SUBMITTED: March 21, 1958

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

AUTHORS: Ioffe, V. A., Khvostenko, G. I. 20-118-4-23/61

TITLE: The Anomalous Dispersion of the Dielectric Constant in Feldspars (Anomal'naya dispersiya dielektricheskoy pronitsayemosti v polevykh shpatakh)

PERIODICAL: Doklady Akademii Nauk SSSR, 1958, Vol. 118, Nr 4, pp. 709-712 (USSR)

ABSTRACT: At first, the authors shortly report on the development of this problem. The present paper investigates the dielectric loss angle and the dielectric constant of potassium feldspar (orthoklase) and of sodium feldspar (albite) within the temperature range of from 20 to 500°K and within the range of frequencies of from 500 kilocycles to 5 Megacycles, The measurements were performed in vacuo, after the sample was heated to 500°K in an evacuated bell. The electrodes were applied by means of burning-in a silver paste. Measurements were conducted with a bridge circuit. A diagram illustrates the temperature dependence of tg δ and ε in orthoklase for frequencies of 8.10^5 and 8.10^4 cycles. The value of tg δ is very small in orthoklase

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at temperatures of from 20 to 500°K ($\sim 5.10^{-4}$) and is little dependent upon temperature.- The dielectric constant retains its constant value of $\varepsilon = 6$. From 200°K onwards tg δ and ε begin to increase sharply with growing temperature, tg δ increasing by about two orders of magnitude. If the temperature is further raised, tg δ remains constant. A sharp increase of ε is also observed within the same temperature range. A second diagram illustrates the frequency dependence of tg and ε in orthoklase at the temperatures 297°K, 399°K and 246°K. The maximum of tg δ at all three temperatures is found at the frequency $\sim 4{,}5.10^5$ cycles. The frequency of the maximum is independent from temperature. A second, wider maxiumum is observed at a frequency of 2.10^6 cycles at a temperature of 297°K. Further numerical data are given. The dielectric constant decreases within the range of low frequencies at all temperatures investigated, when the frequency is increased, then passes through a maximum at the frequency of 2.10^5 cycles, and through a low minimum at $4{,}5.10^5$ cycles. Then the dielectric constant increases again

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up to a value of $\sim 6{,}3.10^5$ cycles. A further diagram illustrates the temperature dependence of tg δ and of ε in albite at the frequencies 8.10^5 and 8.10^4 cycles. This temperature dependence shows the same character as in orthoklase. Similar dependences were also obtained by the authors for plagioklase, which consists of a solid solution of sodium- and potassium feldspars. An anomalous dispersion of ε also exists in plagioklase, the range of dispersion, however, is somewhat lower, within the frequency range of $\sim 10^5$ cycles. The here obtained temperature dependences of tg δ and of ε in feldspars can neither be explained by conduction processes, nor by relaxation processes. This also holds for the temperature dependence of tg δ. Such a temperature dependence can obviously be explained by resonance phenomena. The resonance phenomena observed in feldspars are obviously caused by electron processes.
There are 4 figures, and 2 references, 1 of which is Soviet.

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The Anomalous Dispersion of the Dielectric Constant in Feldspars 20-118-4-23/61

ASSOCIATION: Institut khimii silikatov Akademii nauk SSSR (Institute for Silicate Chemistry, AS USSR)

PRESENTED: August 19, 1957, by A. F. Ioffe, Member of the Academy

SUBMITTED: August 16, 1957

AVAILABLE: Library of Congress

Card 4/4

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, V.A. [translator]; SMOLENSKIY, G.A., red.; FURTSEV, A.K., red.; KORNILOV, B.I., tekhn.red.; POPAPENKOVA, Ye.B., tekhn.red.

[Dielectric spectroscopy; recent studies on the properties of certain ferromagnetic semiconductors and dielectrics: relaxation processes, electric conductance, losses, and the role of structural defects. Translated articles] Dielektricheskaia spektroskopiia; noveishie issledovaniia svoistv nekotorykh ferromagnitnykh poluprovodnikov i dielektrikov: relaksatsionnye protsessy, elektroprovodnost', poteri i rol' defektov struktury. Sbornik statei. Pod red. G.A.Smolenskogo. Moskva, Izd-vo inostr.lit-ry, 1960. 362 p. (MIRA 14:4)

(Spectrum analysis) (Dielectrics) (Semiconductors)

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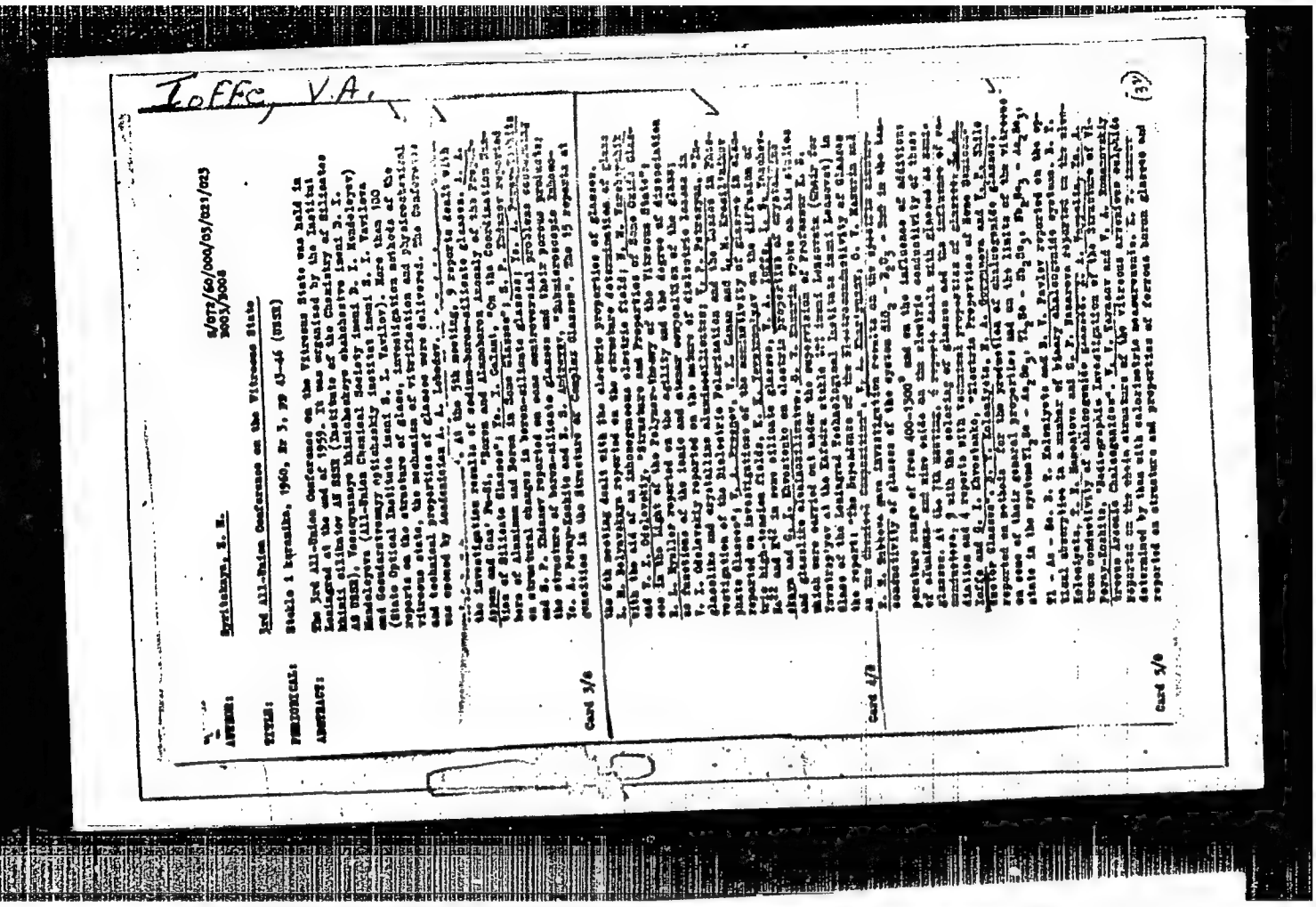

Ioffe, V.A.

S/073/60/000/03/021/023
B015/B006

AUTHOR: Spitsyn, V. I.

TITLE: 3rd All-Union Conference on the Vitreous State

PERIODICAL: Steklo i keramika, 1960, Nr 3, pp 43-46 (USSR)

ABSTRACT: The 3rd All-Union Conference on the Vitreous State was held in Leningrad at the end of 1959. It was organized by the Institut khimii silikatov AN SSSR (Institute of the Chemistry of Silicates AS USSR), Vsesoyuznoye khimicheskoye obshchestvo imeni D. I. Mendeleyeva (All-Union Chemical Society imeni D. I. Mendeleyev) and Gosudarstvennyy opticheskiy institut imeni S. I. Vavilova (State Optical Institute imeni S. I. Vavilov). More than 100 reports on the structure of glass, investigation methods of the vitreous state, the mechanism of vitrification and physicochemical and technical properties of glasses were delivered. The Conference was opened by Academician A. A. Lebedev, ... At the 5th meeting, 9 reports dealt with the investigation results of oxide-borate-silicate glasses. A. A. Appen and Ya. Ye. Geguzin ("On the Coordination Function of Silicate Glass"), S. P. Zhdanov ("Crystal Structure of Aluminum and Boron in Some Glasses") [illegible] ... as structural changes in borosilicate glasses. Ye. A. Porai-Koshits and S. S. Abramov reported on such glasses and their porous products, the structure of borosilicate glasses, "Khimicheskoye stroyeniye ... Ye. A. Porai-Koshits and S. S. Abramov", the 15 reports at ... sentative in the discussion of "Complex Glasses". ...

Card 3/6

... the 6th meeting dealt with the electric properties of glass. L. M. Belyayeva reported on the electric determination of glass ... with the aid of an inhomogeneous electric field"), B. T. Kolomiyets and T. N. Rogachev ("Structure and Properties of Vitreous Selenium") ... and T. N. Rogachev reported on the ability and the degree of dissociation ... of the ions of the glass ... T. I. Gubareva reported on the nature of electric losses in ... glasses with different compositions. V. P. Pashenkin and ... investigation of the dielectric polarization and the losses in glass ... reported on investigations of the anomalously ... glass in the ... reported on investigations of the dependence of the diffusion of ... ions in glass ... [illegible] ... and gave a review of electric properties of crystalline ... and glassy silicates. ... Ya. I. Frenkel's work on the kinetic theory of the vitreous state was carried out under the ... [illegible] ... which were carried out under the ... [illegible] ... Ioffe and G. O. Greskovich on ... [illegible] ... and discussed the properties of ... [illegible] ... glass of the Leningrad Technological Institute imeni Lensovet) ... the report: "The Dependence of the Electroconductivity of Glasses ... on the Chemical Composition", V. I. Kovalenko and ... [illegible] ... E. K. Sidorin gave investigation results of the ... conductivity of glasses of the system $SiO_2 - P_2O_5$ - ... and on the ... peratures range of from 400-1500° and on the influence of additions ... of alkalies- and also other oxides on the electric conductivity of ... glasses. At the 7th meeting, 9 reports dealt with the coloring of glasses and the influence of ... conditions; 3 with the coloring of glasses ... and 4 reports with technical properties of ... glasses. ... [illegible] ... Ioffe and G. I. Chesnokova, Victoria ... properties of Rose Bengal ... Uvarov, Glasses ... [illegible] ... reported on pink ... for the production of the vitreous ... on some of their general properties and on the limits of ... state in the system $Tl_2O - As_2O_3$, $Tl_2O - Sb_2O_3$, $Bi_2O_3 - As_2O_3$, $Tl - As - Se$. I. Kolomiyets and B. T. Kolomiyets reported on the ... tical description in a number of binary chalcogenide systems. I. I. Kolomiyets, G. N. Gapeshina and G. F. Kosarev reported on the ... tron conductivity of chalcogenide glasses. ... [illegible] ... of the structure of Vitreous Arsenic Chalcogenides". V. I. Arkhipov and V. A. Kosarevskiy reported on the thin structure of the vitreous arsenic ... [illegible] ... determined by the ... reported on structure and properties of ferrous boron glasses and ...

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Card 5/6

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81364

S/181/60/002/03/22/028
B006/B017

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24.7700

AUTHORS: Ioffe, V. A., Khvostenko, G. I.

TITLE: Electrical Conductivity of Sodium-aluminum-silicate Glasses

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 3, pp. 509-516

TEXT: The authors investigated the electrical conductivity of glasses of the system $Na_2O \cdot x\,Al_2O_3 \cdot (y-x)\,SiO_2$ with y = 2,3,4, and 6 and x from 0 to 1.1. The aim of the present investigations was to find out whether a second type of charge carrier exists in these glasses (it has been assumed already earlier that the electrical properties of these glasses are not only determined by ionic but also by electronic processes). They also wanted to investigate the dependence of conductivity on the Na_2O content and the structure at very low temperatures and in the range 15 - 240°C. The composition of the glasses investigated is given in a Table (p. 510). Conductivity was measured electrometrically (Fig. 1), the apparatus made it possible to measure currents of down to 10^{-14}a; voltage sensitivity was 10^{-3}v/graduation. All measurements were made in vacuum,

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Electrical Conductivity of Sodium-aluminum-silicate Glasses

S/181/60/002/03/22/028
B006/B017

after a continuous heating of the sample at 250°. Since the initial amperage could not be measured, the time dependences of "charge" and "discharge" of the sample were determined and then extrapolated for t = 0 both graphically as well as by computation. Figs. 2 - 5 show $\log\sigma = f(1/T)$ of four series of glasses. The following results were obtained: The electrical conductivity in the glasses investigated does not depend on the Na_2O content; it is determined by the ratio between the number of the aluminum-oxygen tetrahedra and the number of silicon-oxygen tetrahedra in the structural lattice, i.e., by Al/Si. With increasing Al/Si, electrical conductivity increases, whereas the activation energy U and the number of carriers decreases. The electrical conductivity of two glasses may be expressed by the formula $\sigma = \sigma_0 \exp(-U_1/kT) + \sigma_0' \exp(-U_2/kT)$ which indicates that in these glasses two types of carrier exist. The authors assume that in the second type electrons are concerned. The resulting dependence of σ, U, and σ_0 on the composition (Figs. 7 - 10) may be explained by a change of the ratio of the fractions of ionic and electronic conduction in these glasses. N. M. Verebeychik and V. I. Odilevskiy are mentioned. There are 10 figures, 1 table, and 4 references:

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

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Electrical Conductivity of Sodium-aluminum-silicate Glasses

S/181/60/002/03/22/028
B006/B017

4

3 Soviet and 1 Swiss.

ASSOCIATION: Institut khimii silikatov AN SSSR Leningrad (Institute of Silicate Chemistry of the AS USSR, Leningrad)

SUBMITTED: June 4, 1959

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

IOFFE, V. A.

81957
S/181/60/002/04/17/034
B002/B063

24.2100
AUTHORS: Ioffe, V. A., Patrina, I. B., Poberovskaya, I. S.

TITLE: Electric Properties of Some Semiconducting Oxide Glasses

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 4, pp. 656-662

TEXT: The authors examined glasses of the systems $V_2O_5 - P_2O_5$, $V_2O_5 - P_2O_5 - BaO$, and $WO_3 - P_2O_5 - K_2O$ (Table). Their electrical conductivity σ was measured by means of a tube voltmeter having a 1 э 1м(1E1P) tube. A Q-meter of the type Тесла B211 (Tesla V211) and a bridge of the type Тесла М-351 (Tesla M-351) were used to measure the dielectric losses ($\tan \delta$) and the dielectric constant ε. σ was determined between 290°K and 500°K. Figs. 1, 2, and 6 show the temperature dependence of σ for the above-mentioned systems. The electrical conductivity of the glasses rises with their content of vanadium and tungsten. This is due to the fact that the conductivity is effected by electron transition between vanadium and tungsten ions of different valences. The conductivity of vanadium glasses mainly depends on the ratio of vanadium oxide to phosphorus oxide, and is

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independent of their content of barium (Fig. 2) or sodium (Fig. 9 ; the values were derived from Ref. 5). tan δ and ε were measured at 1, 50, 500 kc/s, and 1.6 Mc/s within the temperature range 60 - 400°K (Figs. 4, 5, and 8). Here, relaxation processes occur, which are connected with electron transitions between ions of different valences, and are caused by the statistically disordered distribution of these ions. Mention is made of I. I. Kitaygorodskiy and V. G. Karpechenko. There are 9 figures, 1 table, and 8 references: 2 Soviet, 3 American, 2 British, and 1 Czech.

ASSOCIATION: Institut khimii silikatov AN SSSR, Leningrad
(Institute of Silicate Chemistry of the AS USSR, Leningrad)

SUBMITTED: August 1, 1959

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IOFFE, V.A.

Vsesoyuznaya konferentsiya po fizike dielektrikov, 2d, 1958

Fizika dielektrikov; trudy vtoroy vsesoyuznoy konferentsii (Physics of Dielectrics; Transactions of the 2d All-Union Conference on the Physics of Dielectrics) Moscow, Izd-vo AN SSSR, 1960. 532 p. Errata slip inserted. 5,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Fizicheskiy institut imeni P.N. Lebedeva.

Ed. of Publishing House: Ye.I. Shtrenkmakher; Tech. Ed.: L.M. Dorokhina; Editorial Board: (Resp. Ed.) G.I. Skanavi, Doctor of Physics and Mathematics (Deceased), and K.V. Filippova, Candidate of Physics and Mathematics.

Purpose: This collection of reports is intended for scientists investigating the physics of dielectrics.

Coverage: The Second All-Union Conference on the Physics of Dielectrics held in Moscow at the Fizicheskiy institut imeni P.N. Lebedeva (Physics Institute imeni P.N. Lebedev) in November 1958 was attended by representatives of the principal scientific centers of the USSR and of several other countries. This collection contains most of the reports presented at the conference and summaries of the discussions which followed. The reports in this collection deal with dielectric properties, losses, and polarization, and with spontaneous inductive capacitance of various crystals, chemical compounds, and ceramics. Physical electrets, ferroelectric crystals, and various relaxation and irradiation effects on dielectrics are investigated. The volume contains a list of other papers presented at the conference dealing with polarization, losses, and breakdown of dielectrics, which were published in the journal Izvestiya AN SSSR, seriya fizicheskaya, No. 1 and 2, 1960. No personalities are mentioned. References accompany each report.

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IOFFE, V.A

PART I BOOK EXPLOITATION SOV/5053

Vsesoyuznoye soveshchaniye po steklobrazovaniyu. 3d, Leningrad, 1959.

Vsesoyuznoye soveshchaniye po steklobrazovaniyu; trudy Tretyego vsesoyuznogo soveshchaniya Leningrad, 16-20 noyabrya 1959 (Vitreous State; Transactions of the Third All-Union Conference on the Vitreous State, Held in Leningrad on November 16-20, 1959) Moscow, Izd-vo AN SSSR, 1960. 538 p. Errata slip inserted. 3,200 copies printed.
(Series: Its: Trudy)

Sponsoring Agencies: Institut khimii silikatov Akademii nauk SSSR. Vsesoyuznoye khimicheskoye obshchestvo imeni D.I. Mendeleyeva and Gosudarstvennyy orden Lenina opticheskiy institut imeni S.I. Vavilova.

Editorial Board: A.I. Avgustinik, V.P. Barabotovskiy, M.A. Bezborodov, O.K. Botvinkin, V.V.Vargin, A.G. Vlasov, K.S. Yevstropyev, A.A. Lebedev, N.A. Toropov, V.A. Molchanov, E.L. Nyuller, Ye.A. Poray-Koshits, Chairman, I.V. Tuverov; Tech. Ed.: Florinskaya, A.K. Yakhkind; Ed. of Publishing House: I.V. Tuverov

PURPOSE: This book is intended for researchers in the science and technology of glasses.

COVERAGE: The book contains the reports and discussions of the Third All-Union Conference on the Vitreous State, held in Leningrad on November 16-19, 1959. They deal with the methods and results of studying the structure of the vitreous state, the nature of the relation between the structure and properties of glasses, fused chemical bond and glass structure, and the crystallochemistry of glass structure, and silica, mechanism of vitrification, optical properties and glass structure, and the electrical properties of glass are also discussed. A number of the reports deal with the dependence of glass properties on composition, the tinting of glasses and radiation effects, and mechanical, technical, and coal properties and use of glasses. Other papers treat glass semiconductors and coal chemistry. The Conference was attended by more than 500 delegates from Soviet and East German scientific organizations. Among the participants, Yu. Ya. Tarasevich, V.P. Prysyazhnyuk, Yu.A. Gaster, V.P. Prysyazhnyuk, D.I. Mendeleyev, Ye. V. Kovalevskiy, N.M. Pavlushkin, S.M. Petrov, A.S. Lazarev, D.I. Mendeleyev, O.V. Gotlib, O.P. Mchedlov-Petrosyan, G.O. Mikhaylov, A.Ye. Ramendik, K.V. Degtyarev, N.A. Levin, A.F. Shatilov, E.S. Pinchukskiy, A.Ya. Rokin, K.K. Keller, Ye.A. Syurgeyeva, A.A. Kaliner, M.M. Shcherbak, Z.G. Pinsker, and O.S. Molchanova. Professor, V.P. Feofilov, R.L. Shreyderov, Z.G. Pinsker, I.I. Kitaygorodskiy, Director of the Conference was addressed by Professor I.I. Kitaygorodskiy, The final session of the Conference, Doctor of Technical Sciences. The following honored Scientist and Engineer, Doctor of Technical Sciences. The following institutes were cited for their contribution to the development of glass science and technology: Gosudarstvennyy opticheskiy institut (State Optical Institute), Institut khimii silikatov AN SSSR (Institute of Silicate Chemistry, AS USSR), Fiziko-tekhnicheskiy institut AN SSSR (Physics Institute AS USSR) Institut fiziki AN BSSR, Fizicheskiy institut AN SSSR (Physicotechnical Institute, AS USSR) Institut fiziki AN BSSR, Institut AN SSSR (Physicotechnical Institute, Krasnoyarskaya SSR, Minsk), Minsk (Institute of Physics, Academy of Sciences, Belorusskaya SSR, Minsk), Institut obshchey i neorganicheskoy khimii (Institute of General and Inorganic Chemistry, Laboratory of Physical Chemistry of Silicates of the Institut vysokomolekulyarnykh soyedineniy AN SSSR(Institute of High Molecular Compounds, AS USSR), Gosudarstvennyy institut stekla (Gosu Institut for Glass Fiber), Gosudarstvennyy institut elektrotekhnicheskogo stekla (State Institute for Electrical Glass), Sibirskiy fiziko-khimicheskiy institut, Tomsk (Siberian Physicochemical Institute, Tomsk), Leningradskiy gosudarstvennyy universitet (Leningrad State University), Moskovskiy khimiko-tekhnologicheskiy institut (Moscow Institute of Chemical Technology), Leningradskiy tekhnologicheskiy institut im. Lensoveta (Leningrad Technological Institut imeni Lensovet), Belorusskiy politekhnicheskiy institut (Belorussian Polytechnic Institute, Minsk), Novocherkasskiy politekhnicheskiy institut (Novocherkassk Polytechnic Institute), and Everybody was appointed by the Institute of Silicate Chemistry AS USSR (Acting Director - A.S. Gotlib), the Vsesoyuznoye khimicheskoye obshchestvo im. D.I. Mendeleyeva (All-Union Chemical Society imeni D.I. Mendeleyev) and the Gosudarstvennyy orden Lenina opticheskiy institut imeni S.I. Vavilova (State Order of Lenin Optical Institute imeni S.I. Vavilov). The 15 resolutions of the Conference include recommendations to publish a new Center for the purpose of coordinating the research on glass, and Chemistry of Polytechnic Institute), the Conference was appointed by the Vsesoyuznoye khimicheskoye Chemistry AS USSR (Acting Director - A.S. Gotlib), the Vsesoyuznoye khimicheskoye obshchestvo im. D.I. Mendeleyeva (All-Union Chemical Society imeni D.I. Mendeleyev) and the Gosudarstvennyy orden Lenina opticheskiy institut imeni S.I. Vavilova (State Order of Lenin Optical Institute imeni S.I. Vavilov). The 15 resolutions of the Conference include recommendations to publish a new Center for the purpose of coordinating the research on glass, and Chemistry of Polytechnic Institute), the Conference was appointed by the Vsesoyuznoye khimicheskoye Chemistry AS USSR (Acting Director - A.S. Gotlib), the Vsesoyuznoye khimicheskoye obshchestvo im. D.I. Mendeleyeva (All-Union Chemical Society imeni D.I. Mendeleyev) and the Gosudarstvennyy orden Lenina opticheskiy institut imeni S.I. Vavilova (State Order of Lenin Optical Institute imeni S.I. Vavilov). The 15 resolutions of the Conference include recommendations to publish a new Center for the purpose of coordinating the research on glass, and Chemistry of Polytechnic Institute). The

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24934 S/181/61/003/006/031/031
B102/B214

15.2120

AUTHORS: Ioffe, V. A. and Zonn, Z. N.

TITLE: Glasses with high dielectric constant

PERIODICAL: Fizika tverdogo tela, v. 3, no. 6, 1961, 1902-1904

TEXT: The authors investigated the possibility of making glasses on a Bi_2O_3-basis by adding TiO_2, BaO, or PbO without using a vitrifying oxide (such as SiO_2, B_2O_3, or P_2O_5). With 70-80 mole% Bi_2O_3 and addition of 20-30 mole% at 1100-1150°C a transparent melt was obtained which crystallized when cast into molds. The material had an ε of 75-80. In the range 100 cps - 2.5 Mc/sec ε was independent of frequency. $\tan\delta = 0.005 - 0.006$ at 100 cps, and 0.01 at 2.5 Mc/sec. On addition of 10 mole% SiO_2 or B_2O_3 transparent glasses were obtained which, however, still had the tendency to crystallize and devitrification. Stable glasses were obtained only after adding SiO_2 in quantities of over 15 mole%. The composition of the glasses investigated are shown in Fig. 1.

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Glasses with high dielectric constant

The glasses were founded in corundum and platinum crucibles in a silite furnace for 30 min. Longer holding times led to a darkening of the glass and a tendency towards devitrification. The softening point of the glasses was 550-850°C. They were stable against water. The glasses with 17-25 mole% SiO_2 had an ε of 38-40 which decreased with increasing SiO_2 content (40 mole% SiO_2, $\varepsilon = 25$). ε was independent of frequency in the range 100 cps-2.5 Mc/sec, and increased linearly with increasing temperature; $\tan\delta = 0.002$-0.003 at 100 cps, and was only slightly frequency dependent. The crystallization of the glasses led to a rise in the values of ε and $\tan\delta$. ε of ordinary silicate glasses and borate glasses lies between 6 and 10, of silicate glasses with high (50 mole%) PbO content between 17 and 18. G. I. Skanavi and A. M. Kashtanova (ZhFT, XXVII, 1770, 1957) obtained devitrified boron-lead-titanium glasses with $\varepsilon = 35$. They explained the high ε value as being due to the formation of crystalline lead titanate. Glasses on the basis of TeO_2 have ε values of 28-32.

Glasses on the basis of bismuth oxide have the highest ε of all inorganic glasses known; their $\tan\delta$ has the same order of magnitude as in alkali-free silicate glasses. Their use in industry appears very promising. There are

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618630003-4

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Glasses with high dielectric constant B102/B214

3 figures and 4 references: 1 Soviet-bloc and 3 non-Soviet-bloc. The three references to English-language publications read as follows: H. M. Heaton, H. Moore. J. Soc. Glass Techn. 41, 3, 1957; M. Heynes, H. Rowson, J. Soc. Glass Techn., 41, 347, 1957; J. Ph. Poley. Nature, 174, No. 4423, 268, 1954.

ASSOCIATION: Institut khimii silikatov AN SSSR Leningrad (Institute of Silicate Chemistry of the AS USSR, Leningrad)

SUBMITTED: February 24, 1961

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B102/B214

Glasses with high dielectric constant

Legend to Fig. 1:
▲ devitrificating and crystallizing glasses
• transparent, light yellow glasses.

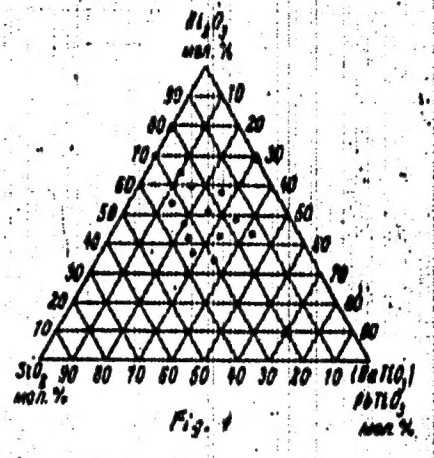

Fig. 1

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